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February 15, 2012

Ms. Kimberly Tisa
PCB Program Coordinator
US Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

RE: Revised PCB Abatement Plan
Spring Street School, Shrewsbury, MA.

Dear Ms. Tisa:

In accordance with the regulations at 40 CFR 761.61(c) for Risk-Based Cleanup and Disposal of PCBs, the following attached PCB Abatement Plan has been prepared for the Spring Street School in Shrewsbury, Massachusetts. This Plan incorporates revisions made to our original Plan dated January 4, 2012 pursuant to your comments provided in your letter dated February 2, 2012.

Plans are to renovate the existing structure. In preparation for renovation, samples of various building materials were tested for PCBS. PCBs greater than 50 parts per million were detected in window and door caulking and adjacent brick and mortar of the building. In addition, a soil sample collected from under one window had concentrations of PCBs in excess of the Massachusetts Department of Environmental Protection's RCS-1 reportable concentration of 2 ppm.

All sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file with the School Department at 100 Maple Avenue, Shrewsbury, MA., and are available for EPA inspection.

If you have any questions concerning this data, please do not hesitate to give me a call.

Very truly yours,

Robert Cox
Director of Public Facilities
Town of Shrewsbury

Ralph J. Tella, CHMM, LSP
Vice President and Senior Project Mgr.

Attached: PCB Abatement Plan-Spring Street School

Revised Polychlorinated Biphenyl Abatement Plan

For the Site:

Spring Street Elementary School
123 Spring Street
Shrewsbury, MA. 01545

Prepared for:

Town of Shrewsbury

c/o Habeeb & Associates Architects, Inc.
150 Longwater Drive
Norwell, MA. 02061-1618

_____

Prepared by:

Lord Associates, Inc.
1506 Providence Highway, Suite 30
Norwood, MA 02062

Project No. 1804

May 16, 2012

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1.0 Introduction

1.1 Purpose & Background

Pursuant to 40 CFR 761.61(c) of the Toxic Substances Control Act (TSCA), Lord Associates, Inc. (LAI) is submitting this Revised Polychlorinated Biphenyl (PCB) Abatement Plan for the site referred to as the Spring Street Elementary School in Shrewsbury, Massachusetts (the "Site"). This plan revises and supersedes the original plan dated January 4, 2012 and revised plan dated March 15, 2012 with comments supplied by the United States Environmental Protection Agency (EPA), and additional data collected from the sampling of stucco materials. The need for the Abatement Plan was triggered by the identification of PCBs in window and door caulking and adjacent building materials in preparation of a planned building window replacement project.

The Site is located within a suburban residential neighborhood located in Shrewsbury, Massachusetts. The property on which the Site is located is currently used as an elementary school serving grades K-4. A Site Locus is presented in **Figure 1**.

In planning for the replacement of existing window systems, the Town contracted with Universal Environmental Consultants, Inc. (UEC) of Framingham, Massachusetts to collect representative samples of existing window caulking and adjacent building materials for the analyses of PCBs. According to the Assessor's Office records, the present structure was built in 1965. Construction documents describe the use of "THIOKOL" elastomeric caulking, which was known to contain PCBs.

The use of PCBs in building materials such as caulk is considered by the EPA to be an "unauthorized use". Pursuant to 40 CFR 761.62, concentrations in excess of 50 milligrams per kilogram (mg/kg), or roughly parts per million (ppm), must be remediated as PCB "Bulk Product Waste". The results of the sampling indicated that at some locations the caulking contained PCBs as high as 120,000 ppm.

Sampling of adjacent building materials (brick, mortar and stucco) as well as soil below these materials also indicated the presence of PCBs. Building materials and soil into which PCBs have leached must be remediated as "PCB Remediation Waste" in accordance with 40 CFR 761.61. In addition to the federal EPA regulations, PCBs in soil greater than 2 ppm are regulated by the Massachusetts Contingency Plan (MCP) regulations at 310 CMR 40.0000.

The Abatement Plan proposes to remove all of the windows and doors identified for off-site disposal as Bulk Product Waste and treat all adjacent building materials and soil into

which PCBs has leached, as PCB Remediation Waste. Plans have been developed herein to completely remove all existing window systems and replace them with a new design that will encapsulate the adjacent building materials thereby eliminating exposure potential. Exterior stucco façade panels containing PCBs will also be encapsulated. A two-part epoxy coating will be used to encapsulate the stucco façade. Soil greater than 1 ppm will be excavated for off-site disposal.

1.2 Contact Information

The following information pertinent to the persons assuming responsibility for conducting the Abatement Plan (i.e., the Potentially Responsible Party, PRP) is provided as follows:

PRP Contact Information:

Name:	Mr. Robert Cox
Address:	100 Maple Avenue, Shrewsbury, MA. 01545
Telephone:	(508) 841-8513
Relationship:	Director of Public Facilities

Architectural Design:

Name:	James Pongsa, Habeeb & Associates, Architects, Inc.
Address:	150 Longwater Drive Norwell, MA. 02061-1618
Telephone:	781-871-9804

Environmental Consultants/Licensed Site Professional Information:

Name:	Ralph J. Tella, Lord Associates, Inc.
LSP#:	7473
Address:	1506 Providence Highway, Suite 30, Norwood, MA.
Telephone:	(781) 255-5554 x14

2.0 Site Description

2.1 Building Description

The Spring Street School is a two-story steel and masonry structure built in 1967 as an elementary school. The original building was 31,100 square feet. In 1995, two modular classrooms were added and a connecting corridor. Four additional modular classrooms were added in 2000, bringing the total square footage to 37,200 square feet. The building has all electric heat and utilities.

There are a total of 137 windows (4,396 sf) and 8 doors planned for replacement. This equates to approximately 2,000 lineal feet of caulking. There are no lintels present above the windows or doors. Representative photographs of the building are provided in **Appendix A**.

2.2 Land Use and Surrounding Receptors

The property on which the School is located is within a primarily residential neighborhood along Spring Street. The School provides classroom education from kindergarten through grade 4. Potential receptors include students, visitors, faculty and staff. While there are no surface water bodies, wetlands, or critical wildlife habitats adjacent to the building, part of the 11 acre parcel of town land lies within a 200-foot wetlands buffer zone along the east and south sides.

2.3 Nature and Extent of PCB Contamination

Building Materials
Samples of the caulk used to seal the window and door jambs to the adjacent brick and interior window glazing were collected by UEC on March 25, 2011[1]. See **Figure 2** for the locations of these samples. The samples were manually cut-out and placed in containers prepared by the laboratory for shipment to the laboratory under chain-of-custody protocol. The samples were extracted via EPA Method 3540C and analyzed via EPA Method 8082 by EMSL Analytical, Inc.

These results indicate that PCBs in the form of Aroclor 1254 were present in the range of 16-120,000 ppm. PCB containing material was identified in both interior window glazing and exterior window/door caulking samples collected. A summary **Table 1** of these results follows. Copies of these lab reports are provided in **Appendix B**.

[1] Note that the glazing compound was identified on the chain-of-custody form as caulking.

Table 1
Summary of PCBs Detected in Caulking/Glazing Compound
Samples Collected on March 25, 2011
(mg/Kg, dry weight)

Sample ID	Material	Location	Aroclor 1254
9	**caulk**	**Door, east side of Bldg.**	**910**
10	**glazing**	**Int. of window, east side of Bldg.**	**16**
11	**glazing**	**Int. of window, west side of Bldg.**	**61,000**
12	**caulk**	**Ext. of window, east side of Bldg.**	**29**
13	**caulk**	**Ext. of window, west side of Bldg.**	**370**
14	**caulk**	**Ext. of window, west side of Bldg.**	**120,000**

To determine if the PCBs had leached into the adjacent building materials, samples of brick, mortar and stucco material were collected by UEC on October 26, 2011, November 23, 2011, March 28, 2012 and April 11, 2012 by manual chiseling in the areas where the highest concentrations of PCBs were detected in caulk. Building design does not include the use of "lintels" over the windows and doors. See **Figure 2** for the locations of these samples. The samples were extracted via EPA Method 3540C and analyzed via EPA Method 8082 by EMSL Analytical, Inc.

These results indicate that PCBs in the form of Aroclor 1254 were present in brick in the range of 30-540 ppm and in mortar in the range of 110-1,400 ppm, within a distance of two inches of the window frames. PCBs were found in the stucco at concentrations between <0.5-18 ppm, to a distance of at least 5 inches from the edges closest to the PCB containing caulk. No PCBs were detected in the brick and mortar sampled beyond two inches. This includes the rear canopy window area ("Area C") brick where the highest concentration (1,400 ppm) was recorded.

A summary **Table 2** of these results follows. Copies of the original lab reports are provided in **Appendix B**.

Table 2
Summary of PCB Analyses of Building Materials
(mg/Kg, dry weight)

Sample ID	Material	Location	Aroclor 1254
1-10/26	brick	Area A-principal's office, 0-1"	170
1-11/23	brick	Area A-2"	<0.49
2-11/23	brick	Area A-3"	<0.49
3-11/23	brick	Area A-5"	<0.50
2-10-26	mortar	Area A, 0-1"	110
2-3/28	mortar	Area A-2"	2.0
8-3/28	mortar	Area A-3"	0.66
3-10/26	stucco	Area A, 0-1"	0.88
5-3/28	stucco	Area A-2"	3.4
11-3/28	stucco	Area A-3"	10.0
2-4/11	stucco	Area A-5"	4.6
4-10/26	brick	Area B-entry way, 0-1"	540
4-11/23	brick	Area B-2"	<0.50
5-11/23	brick	Area B-3"	<0.50
6-11/23	brick	Area B-5"	<0.49
5-10/26	mortar	Area B, 0-1"	180
1-3/28	mortar	Area B-2"	<0.50
7-3/28	mortar	Area B-3"	<0.50
6-10/26	stucco	Area B, 0-1"	18
4-3/28	stucco	Area B-2"	15
10-3/28	stucco	Area B-3"	7.4
1-4/11	stucco	Area B-5"	3.3
7-10/26	brick	Area C-rear canopy 0-1"	30
1-2/10/12	brick	Area C-2"	<0.49
2-2/10/12	brick	Area C-3"	<0.50
8-10/26	mortar	Area C, 0-1"	1,400
3-3/28	mortar	Area C-2"	1.0
9-3/28	mortar	Area C-3"	<0.50
9-10/26	stucco	Area C, 0-1"	<0.50
6-3/28	stucco	Area C-2"	<0.50
12-3/28	stucco	Area C-3"	<0.50

3-4/11	**stucco**	**Area C-5"**	**<0.50**

Soil

To determine if soil underneath the windows has been impacted by PCBs leaching from the caulk/glazing, samples of soil from underneath the drip edge of the window jambs were collected at a depth of 0-3" below grade on each side of the building with a hand-trowel on December 2, 2011 by UEC. The results indicated that at one location (the "East Side") PCBs are present at a concentration exceeding the applicable MADEP MCP RC-S-1 reportable concentration and cleanup standard of 2 mg/Kg, as well as the EPA remediation waste criteria of <1 ppm. See **Figure 3** for a site plan showing the soil sampling locations.

To determine if PCBs were present throughout the east side of the building area of the school property, three additional soil samples were collected on December 8, 2011 from the south, middle, and north sides of the unpaved areas. These samples were also collected from underneath the drip edge of the window jambs at a depth of 0-3" below grade with a hand-trowel. Two of these samples ("east side, south" and "east side, middle") exceeded applicable standards.

Upon review of this analytical data it was noted that the analytical laboratory extracted the soil samples via EPA Method 3550B, ultrasonic extraction. As this is not the method allowed by EPA for this sample type, sampling and analyses of soil in this area was repeated on February 6, 2012 using EPA Method 3540C, Soxhlet extraction. The results of the re-analyses indicate that PCBs are present in soil in this area, but at slightly lower concentrations than previously reported. Note that analyses of soil samples collected from the "middle" area on both occasions had reported matrix interferences that led to elevated detection limits.

On December 14, 2011 six additional samples were collected from the east side to further define the extent on this side of the building. Assuming that there is a horizontal gradient of high to lower concentrations as one gets further from the building, the samples were collected at a distance of three and four feet away from the building. All of the samples collected on these dates were less than 1 ppm, however an elevated detection limit of the sample collected to the south at 4 feet was also reported on this date.

On January 17, 2012, soil samples were collected from the open grass-covered courtyard area on the northeast side of the building from underneath the drip edge of the windows. No PCBs were detected in the grass-covered courtyard area to the north. A summary of the soil data is provided as **Table 3**. Copies of the original lab reports are provided in **Appendix B**.

The data indicates that the PCB concentration in soil exceeding applicable standards is located within three-four feet of the east side of the building within the grass covered area located to the southeast of the building; an area of approximately 4' wide x 60' long x 0.5'deep. This equates to 120 cubic feet or 4.4 cubic yards that will require excavation for off-site disposal at a RCRA Subtitle D landfill approved to accept PCB Remediation Waste.

Table 3
Summary of PCB Analyses of Soil Samples
(mg/Kg, dry weight)

Sample ID	Location	Aroclor 1254	Aroclor 1260	MCP RC-S1*	EPA Criterion
1-12/2	North Side	0.280	0.087	2.0	<1.0
2-12/2	West Side	0.280	0.097	2.0	<1.0
3-12/2	South Side	0.360	0.200	2.0	<1.0
4-12/2	East Side	2.2	<0.540	2.0	<1.0
1-12/8	East Side, south	3.1	0.400	2.0	<1.0
2-12/8	East Side, middle	<2.1#	1.4	2.0	<1.0
3-12/8	East Side, north	0.220	0.090	2.0	<1.0
1-12/14	East Side, south@3'	<0.310	0.085	2.0	<1.0
2-12/14	East Side, middle, @3'	<1.2	0.280	2.0	<1.0
3-12/14	East Side, north, @3'	<0.063	<0.063	2.0	<1.0
4-12/14	East Side, south, @4'	<2.5#	<2.5	2.0	<1.0
5-12/14	East Side, middle, @4'	<0.300	0.120	2.0	<1.0
6-12/14	East Side, north, @4'	<0.060	<0.060	2.0	<1.0
1-1-17-12	Courtyard south	<0.620	<0.620	2.0	<1.0
2-1-17-12	Courtyard middle	<0.620	<0.620	2.0	<1.0
3-1-17-12	Courtyard north	<0.620	<0.620	2.0	<1.0

1-2-6-12	**East Side, South**	**1.9**	**<0.061**	**2.0**	**<1.0**
2-2-6-12	**East Side, Middle**	**<5.8#**	**<0.061**	**2.0**	**<1.0**
3-2-6-12	**East Side, North**	**0.690**	**0.610**	**2.0**	**<1.0**
Disposal Composite	**East Side**	**34.8**	**<4.08**	**2.0**	**<1.0**
S-29 (4/10/12)	**East Side, near dumpster**	**<0.188**	**<0.188**	**2.0**	**<1.0**
S-30 (4/10/12)	**East Side, near transformer**	**<0.188**	**<0.036**	**2.0**	**<1.0**
Grassy Area (4/10/12)	**East Side, North of Excavation**	**0.332**	**<0.036**	**2.0**	**<1.0**

*MCP RC-S1= Massachusetts Contingency Plan Reportable Concentration, S-1 and S-1/GW-1/3 cleanup standard.

#= elevated detection limit due to reported matrix interferences

3.0 Risk Assessment and Evaluations of Cleanup Alternatives

In accordance with 40 CFR 761.61(c), human health and ecological risk considerations were assessed to evaluate potential exposure scenarios and to provide justification as to the controls proposed to address these exposures. As described in **Section 2.0**, Site Description, the property on which the School is located is within a primarily residential neighborhood along Spring Street. The School provides classroom education from kindergarten through grade 4. Potential receptors include students, visitors, faculty and staff. There are no adjacent surface water bodies, wetlands, or critical wildlife habitats.

Under these conditions, the identified MCP soil category for purposes of risk assessment is “S-1”. This is the most stringent category that assumes both adults and children are present on a high frequency, high intensity basis. Soil with PCB concentrations in excess of the MCP Method 1 S-1cleanup standard are defined as representing a substantial hazard requiring response actions. Given the limited volume of soil identified as

containing PCBs at concentrations greater than the S-1 standard (2 ppm), or the EPA criterion for Remediation Waste (1 ppm), soil excavation with off-site disposal is identified as the most cost-effective cleanup alternative.

In recognition that caulk containing PCBs in concentrations exceeding 50 ppm may present significant health hazards to humans and other environmental receptors via direct dermal contact, ingestion, inhalation, and/or leaching potential, direct removal of these materials is identified as the most cost-effective cleanup alternative.

To address remaining building materials that have been identified as containing concentrations of PCBs in excess of 1 ppm, the cost versus benefit aspects of removal versus encapsulation were evaluated. The following factors were considered in identifying the preference for the use of encapsulation via an engineered control:

1. Exposure Potential. Other building materials identified at the Site containing concentrations of PCBs in excess of 1 ppm such as brick, mortar, and stucco are judged to represent less of an exposure potential risk due to the nature of the material being a relatively inert porous solid, not subject to the degree or rate of weathering (i.e., deterioration) that caulking material may be prone to.

   It is proposed to encapsulate the affected brick and mortar with a sealed aluminum frame/flashing to extend to at least 2" away from the existing caulking location. The frame/flashing is part of the customized window replacement which will provide encapsulation. The stucco façade panels will be painted with a two-part epoxy coating. Encapsulation will prevent direct access to the affected building materials by humans and wildlife, as well as serve to inhibit weathering and potential leaching. A notice will be recorded on the deed to the property informing future parties as to the existence of the PCB conditions, and requirements to maintain the engineered control or conduct additional cleanup activities in the event that continued maintenance is not feasible.

2. Time and avoidance of disruption to the educational program. To avoid disruption to education, the window replacement work must be done during the summer vacation of 2012, adding brick replacement to the project increases the time necessary to complete the work, making a tight schedule even tighter and possibly causing the work to encroach upon the opening of school in September 2012. It is estimated that the School may lose an average of two classrooms for three months if the work takes place while School is in active session.

3. Avoiding loss of partial funding from the Massachusetts School Building Authority, MSBA. If the work were to slip to 2013 due to the added time necessary to remove and replace bricks and mortar, MSBA reimbursement could be lost.

4. Bidding efficiencies. The general contractor for this project will be a window contractor, the aluminum flashing to be used for encapsulation is part of a window contractor's customary work, if the project would include removal/replacement of brick, the window contractor would have to subcontract out that portion of the work and the general contractor's bid would include mark-ups of the subcontractor's work to cover the contractor's overhead, profit, and risk.

5. Economics. It is less expensive to encapsulate the affected masonry than it is to remove it. The cost to remove the impacted masonry is estimated to be between $75,000 and $125,000. Cost for transport and disposal of the PCB impacted masonry would be an additional $50,000, and if the School were to need to rent two modular classrooms for three months, an additional $55,000 may be incurred. Total cost to remove the adjacent PCB-impacted masonry is expected to range from $180,000 to over $230,000. The costs for the proposed encapsulation are approximately $30,000.

6. Aesthetics. The encapsulation of the existing brick and mortar will appear as part of the window system and will have a better appearance than replacement brick that would not match the existing brick.

4.0 Abatement Plan

4.1 Plan Objectives

The objectives of this Abatement Plan are to properly remove all windows and doors with PCB containing glazing and caulk identified as PCB Bulk Product Waste for off-site disposal and encapsulate all adjacent building material (brick, mortar and stucco) identified as PCB Remediation Waste. Brick and mortar greater than two inches away from caulking is considered to be uncontaminated. Soil identified as PCB Remediation Waste ($\geq$1.0 ppm) will be excavated for off-site disposal.

4.2 Work Plan

Design specifications for the proper work area preparation, removal of PCB Bulk Product Waste, encapsulation of PCB Remediation Waste, soil excavation, and work area decommissioning are detailed in the attached specifications provided in **Appendix C**.

4.3 Schedule

Planning work will commence once EPA approval is obtained. A definitive work schedule will be prepared once the project has been successfully bid and awarded. To be compliant with the LRA provisions at 310 CMR 40.0315, soil excavation will be completed within 120-days of the PRP obtaining knowledge of the release.

4.4 Quality Control and Assurance Plan

4.4.1 Inspection and Sampling

Visual Inspection
Following the removal of all PCB Bulk Material and soil excavation, a visual inspection of the work site area will be performed by the environmental consultant to verify the removal of all such visible (caulk) material and to collect confirmatory soil samples from the excavation area for laboratory analyses. Once the new windows have been installed, the metal frame/flashing will be inspected to verify that it covers at least two inches of adjacent masonry and that it has been appropriately sealed with caulk to prevent exposure of the material being covered to precipitation.

Wipe and Indoor Air Sampling
To determine if residual dust or particles impacted by PCBs have migrated beyond the work area, wipe and indoor air samples will be collected from two representative classrooms on each floor, the gym, cafeteria, an admin room, and the library (minimum of eight sample areas). Wipe samples will be collected from a desk top in the approximate middle of the floor in each room. The method of wipe sampling will be as specified in 40 CFR 761, Subpart P. EPA Method TO-10A will be followed for the collection of indoor air samples.

Soil Sampling
Post Excavation confirmatory soil sampling will be done in accordance with 40 CFR 761. Subpart O. This method describes the collection of a representative number of soil samples through the use of a sampling design based on a square-based grid system overlaying the entire area to be sampled.

Base-line sampling described an area of soil along the east side building foundation underneath the windows impacted by PCBs. The area is approximately 4 feet wide and 60 feet long. Following excavation of this area, a grid pattern 1.5 meter wide by 1.5 meter long will be laid-out over the area. Samples will be collected at each of the nodes of the grid boxes, essentially two rows of sample locations: one immediately along the building

foundation, and the other 1.5 meter out from the building foundation, every 1.5 meters in length at a depth of approximately 6 inches (a total of 26 samples). See **Figure 4** for proposed soil sampling locations.

Soil samples will be collected using a stainless steel hand trowel at each point, composited and placed in laboratory prepared hexane rinsed sampling jars for transport to the lab under chain-of-custody protocol for PCB analyses.

The compositing procedures provided in Subpart O of 40 CFR 761 require composite samples to be made up of no more than nine sub-samples. Based on a laboratory detection limit of 0.1 ppm and a target cleanup goal of <1 ppm, equal volume composites will be made from six individual grab samples (two adjacent grid boxes)to facilitate the location of areas that require further cleanup if PCBs are detected. On this basis, there will be a total of six (6) composite soil samples collected from this area for post-remedial verification.

An additional composite soil sample will be collected from the southernmost area of the grassy area north of this excavation area to confirm that PCBs are not present at concentrations greater than 1 ppm. This is proposed as the initial three soil samples collected from this area for pre-characterization purposes were collected over 25 feet away from the proposed excavation area.

4.4.2 Laboratory Methods & Associated QA/QC

The subcontracted laboratory will be National Environmental Laboratory Accreditation Program (NELAP) certified and follow EPA Method 3540C for Soxhlet extractions and Method 8082 for gas chromatography analysis. A blind duplicate sample will be submitted at the 10% level. Intra-laboratory QA/QC data including matrix spike recovery and duplicates will be reported. Any exceptions will be discussed in a lab report narrative.

All reported data will be validated for Precision, Accuracy, Representativeness, Completeness, Comparativeness, and Sensitivity (PARCCS). The following accuracy and precision parameters for soil will be used to evaluate these data:

Table 4
Laboratory QA/QC Parameters

Analyte	Matrix	Analytical Method	Reporting Limit	Precision (RPD%)	Accuracy (% LSC rec)
Aroclor 1016	Soil	8082	100 µg/Kg	50	38-158

Aroclor 1221	Soil	8082	100 μg/Kg	50	38-158
Aroclor 1232	Soil	8082	100 μg/Kg	50	38-158
Aroclor 1242	Soil	8082	100 μg/Kg	50	38-158
Aroclor 1248	Soil	8082	100 μg/Kg	50	38-158
Aroclor 1254	Soil	8082	100 μg/Kg	50	38-158
Aroclor 1260	Soil	8082	100 μg/Kg	50	38-158

4.5 Contingency Plan

In the event that caulk is visually identified on remaining building materials following the post-cleanup quality control inspection, that material will also be removed in accordance with the objectives of the Plan.

In the event that concentrations of PCBs in contaminated soil greater than 1 ppm is identified through sampling following excavation, that material will also be removed, and the above-described confirmatory sampling protocol repeated.

In the event that indoor air sampling detects the presence of PCBs at a concentration greater 300 ng/m^3, or in wipe samples greater than 1 ug/100 cm, following window replacement, each room will be re-tested and any room with results greater than these risk-based criteria will be de-contaminated via the methods specified at 40 CR 761.79 and re-sampled.

5.0 Remedial Waste Management

All bulk PCB material and soil removed for off-site disposal will be managed in accordance with **Part 4** of the attached specification provided in **Appendix C**. This specification provides detail as to the proper labeling, storage, manifesting, and identification of disposal facility.

- All PCB Bulk Product Waste (e.g., windows & doors) will be disposed of at a RCRA Subtitle C facility approved to accept TSCA waste.
- All soil identified as PCB Remediation Waste will be disposed of at a RCRA Subtitle D facility approved to accept such waste.
- All Decontamination Wastes will be disposed of in the roll-off containers used for the disposal of Bulk Product Waste.

6.0 Maintenance and Monitoring

Because this Plan uses encapsulation of the PCB contaminated adjacent substrates, a long-term maintenance and monitoring plan (MIMP) is required by EPA. The exterior building façade and encapsulation area will be inspected by school department personnel on at least a quarterly basis for an indefinite time period while the building is occupied for signs of physical damage and/or deterioration of materials used to encapsulate PCB contaminated areas. Records of this inspection shall be kept in school department records indefinitely. In the event that such damage and/or deterioration are noted, the Town's School and Health Department will be notified.

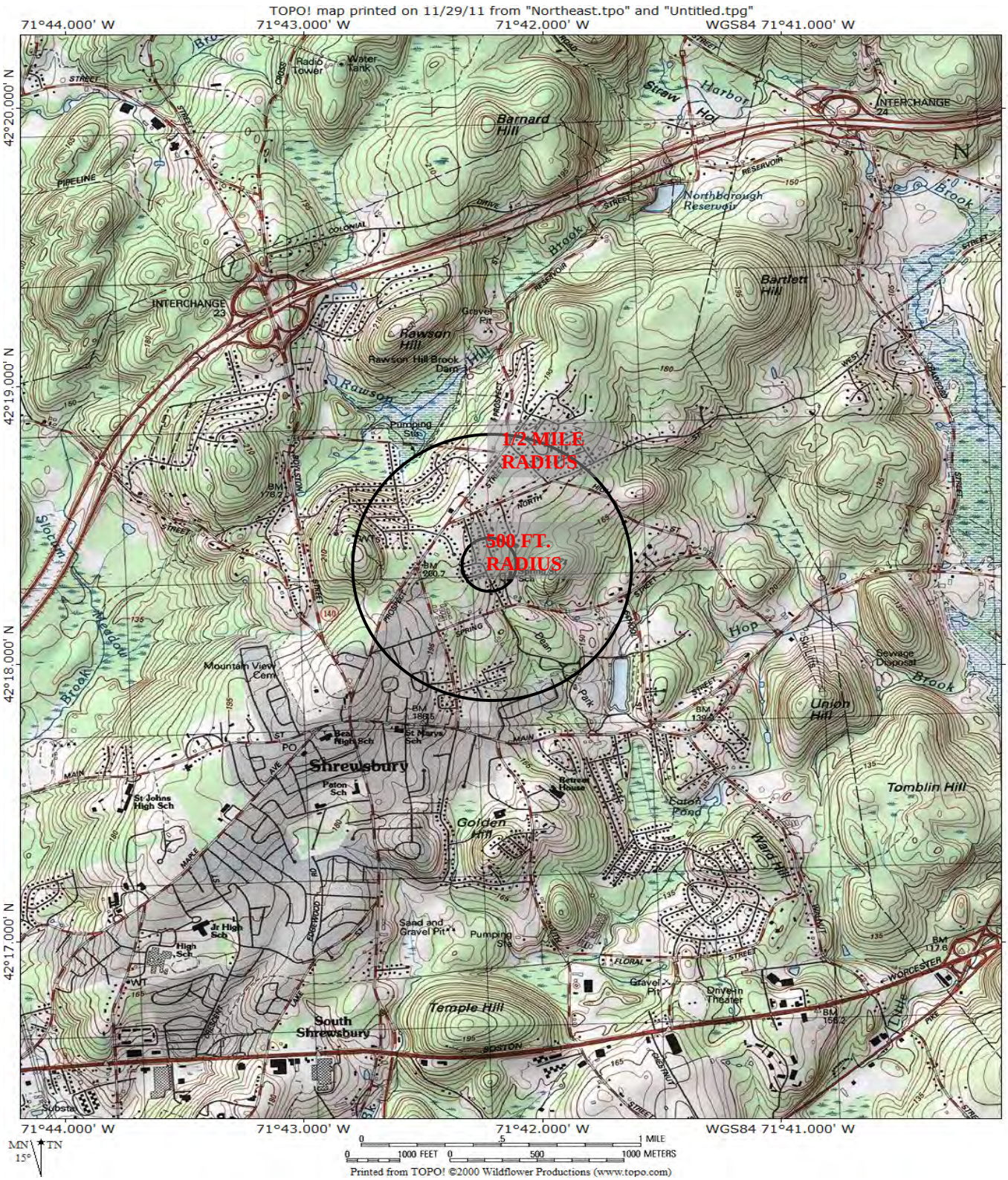
7.0 Notifications and Public Involvement

The Director of Public Facilities, School Department, Principle and other local officials have been made aware of this Abatement Plan. Public notification of remedial work will be made to the School Department, Board of Health and Building Inspector Department at least one week in advance.

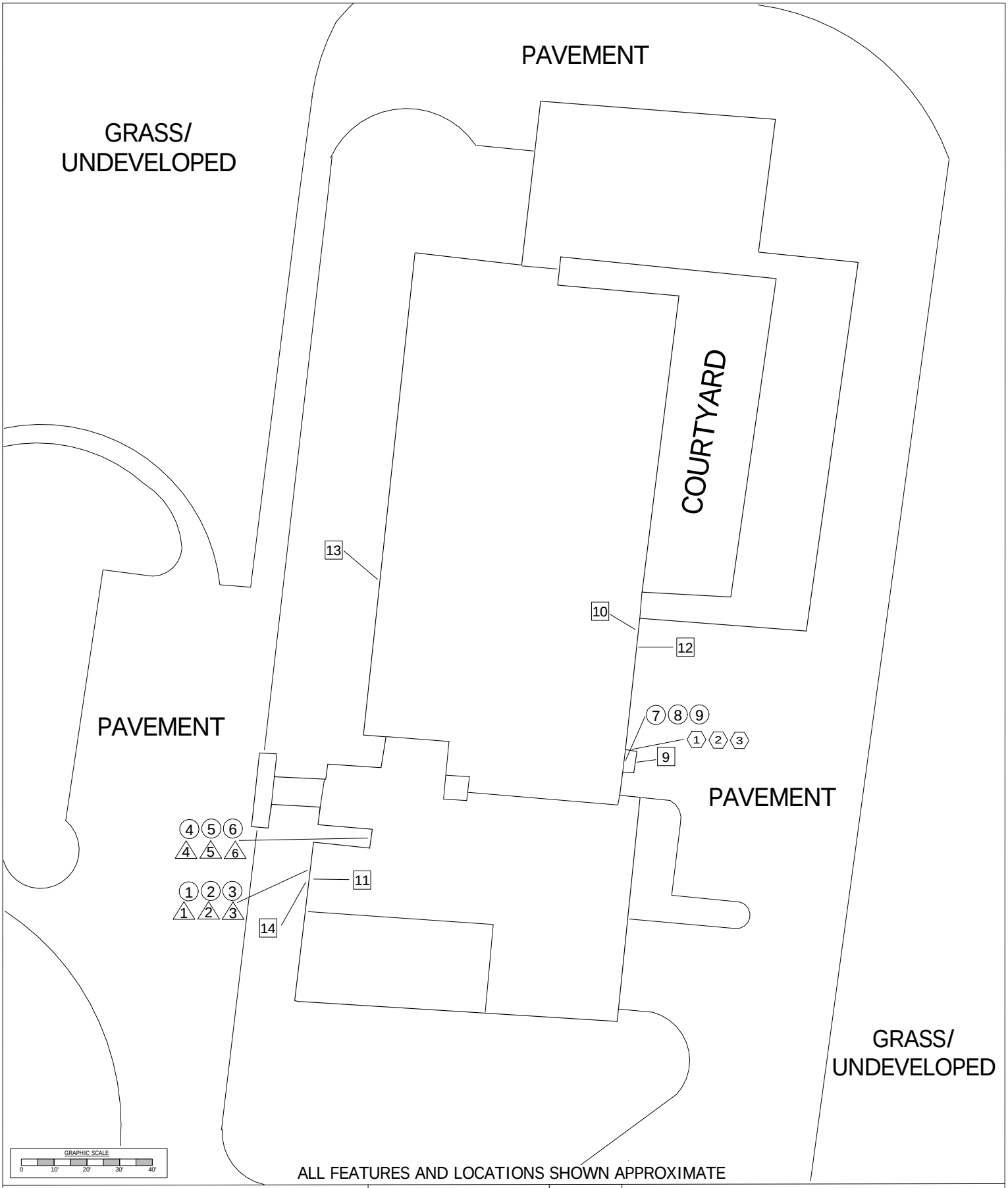
As required by §761.61(c), the use of an encapsulant requires that a notation that documents this fact and any limitations imposed on the use of the site be recorded on the property deed at the registry of deeds. The form of notification will be that as outlined in the Massachusetts Contingency Plan (310 CMR 40.1099) for Activity and Use Limitations amended to reflect the fact that residual contamination is located within building materials and not soil. Copies of the deed notification will be provided to the Town and Building Inspector.

To provide notification to the general affected public, a Fact Sheet detailing the PCB testing and Abatement Plan will be developed and provided to the Board of Health, School Department, staff and parents of the School. A sample copy of a public notice is provided in **Appendix D**.

FIGURES



LORD ASSOCIATES, INC. **1506 Providence Highway, Suite 30** **Norwood, MA 02062-4647** **(781) 255-5554**	**REFERENCE:** USGS TOPOGRAPHIC MAPS Worcester QUADRANGLE CONTOUR INTERVAL: 3 METERS	NORTH	**FIGURE 1: LOCATION MAP** **123 Spring Street** **Shrewsbury, MASSACHUSETTS**



ALL FEATURES AND LOCATIONS SHOWN APPROXIMATE

LORD ASSOCIATES, INC.
1506 Providence Highway, Suite 30
Norwood, MA 02062-4647
(781) 255-5554

SAMPLE LOCATIONS

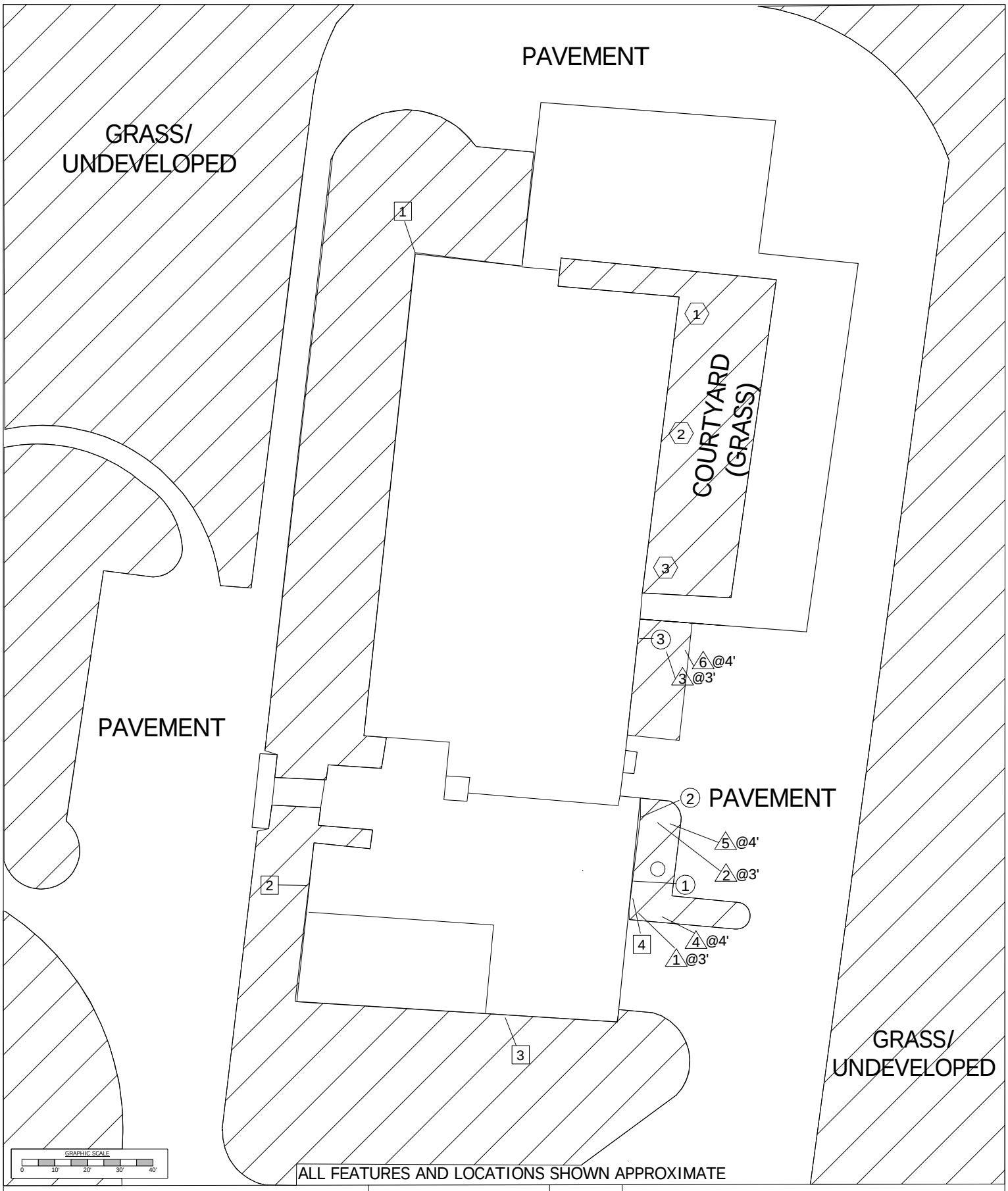
- [1] - 3/25/2011
- (1) - 10/26/2011
- 1 - 11/23/2011
- ⟨1⟩ - 2/10/2012

NORTH

FIGURE 2: SITE PLAN - CAUKING, BRICK, STUCCO

SPRING STREET SCHOOL
SHREWSBURY, MASSACHUSETTS

SCALE: 1"=40' APPROX.	DRAWN BY: SB
DATE: FEB 2012	EDITS:



LORD ASSOCIATES, INC.
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(781) 255-5554

SAMPLE LOCATIONS

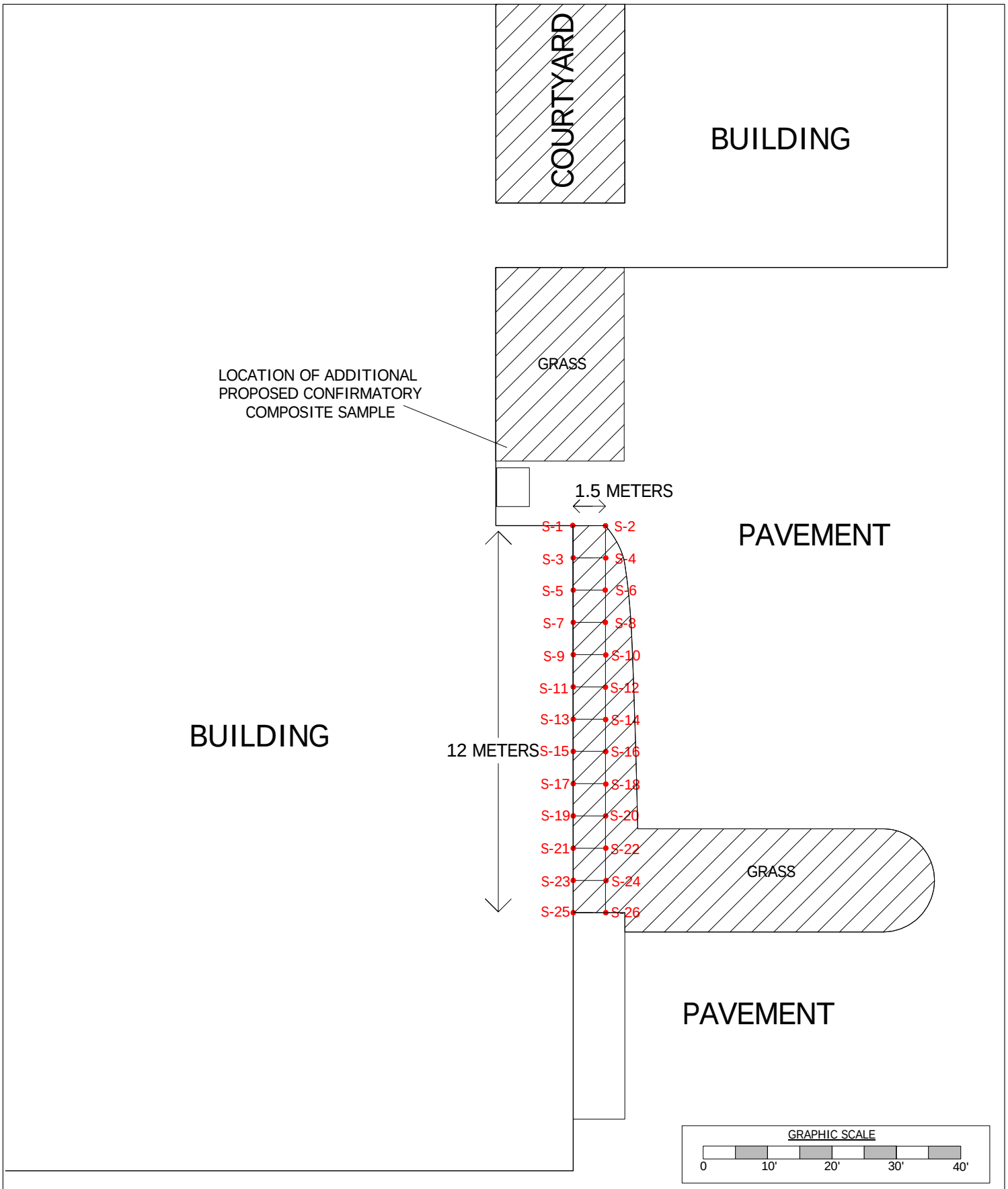
- [1] - 12/2/2011
- (1) - 12/8/2011 & 2/6/2012
- △1 - 12/14/2011
- ⬡1 - 1/17/2012

NORTH

FIGURE 3: SITE PLAN - SOIL SAMPLING

SPRING STREET SCHOOL
SHREWSBURY, MASSACHUSETTS

SCALE: 1"=40' APPROX.	DRAWN BY: SB
DATE: FEB 2012	EDITS:



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Norwood, MA 02062-4647
(781) 255-5554

LEGEND

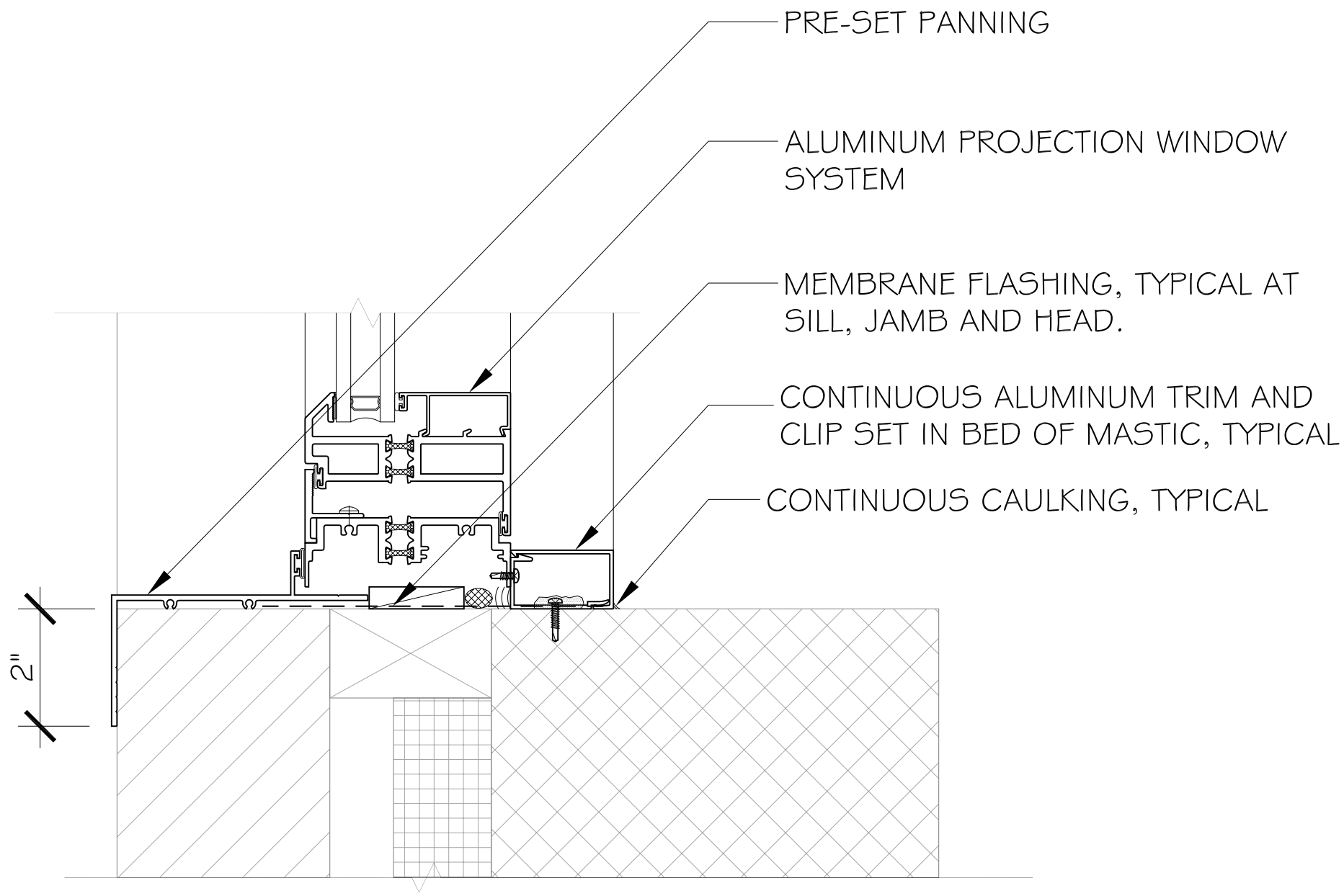
S-1 ● - SOIL SAMPLE LOCATION

NORTH

FIGURE 4: SOIL EXCAVATION AREA DETAIL

SPRING STREET SCHOOL
SHREWSBURY, MASSACHUSETTS

SCALE: 1" =20', APPROX.	DRAWN BY: SB
DATE: MARCH 2012	REV:



TYPICAL JAMB DETAIL

APPENDIX A

Photo #1:	South Side View

Photo #2:	Courtyard Area-East Side, North

Photo #3:	East Side Showing Rear Canopy Door

Photo #4:	North Side View

Photo #5:	West Side View of Main Entrance

Photo #6:	West Side View of Windows, north

Photo #7:	West Side View, south

Photo #8:	East Side, South

APPENDIX B

EMSL Analytical, Inc.

http://www.emsl.com

3 Cooper St.
Westmont, NJ 08108
Phone: (856) 858-4800
Fax: (856) 858-4571

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Phone: (508) 628-5486
Fax: (508) 628-5488

4/8/2011

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 3/28/2011. The results are tabulated on the attached data pages for the following client designated project:

Spring Street School Shrewsbury

The reference number for these samples is EMSL Order #011101568. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

EMSL Analytical, Inc.
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone: (508) 628-5486
Project: **Spring Street School Shrewsbury**

Customer ID: UEC63
Customer PO:
Received: 03/28/11 12:00 PM
EMSL Order: 011101568

Analytical Results

Client Sample Description 9
door
Collected: 3/25/2011 *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1221	ND	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1232	ND	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1242	ND	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1248	ND	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1254	910	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1260	ND	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1262	ND	180	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1268	ND	180	mg/Kg	4/5/2011	ehernandez

Client Sample Description 10
interior of window
Collected: 3/25/2011 *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1254	16	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.96	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.96	mg/Kg	4/5/2011	ehernandez

Client Sample Description 11
interior of window
Collected: 3/25/2011 *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	8600	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1221	ND	8600	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1232	ND	8600	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1242	ND	8600	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1248	ND	8600	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1254	61000	8600	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1260	ND	8600	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1262	ND	8600	mg/Kg	4/5/2011	ehernandez

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone: (508) 628-5486
Project: **Spring Street School Shrewsbury**

Customer ID: UEC63
Customer PO:
Received: 03/28/11 12:00 PM
EMSL Order: 011101568

Analytical Results

Client Sample Description 11
interior of window
Collected: 3/25/2011 *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1268	ND	8600	mg/Kg	4/5/2011	ehernandez

Client Sample Description 12
exterior of window
Collected: 3/25/2011 *Lab ID:* 0004

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1221	ND	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1232	ND	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1242	ND	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1248	ND	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1254	29	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1260	ND	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1262	ND	2.5	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1268	ND	2.5	mg/Kg	4/5/2011	ehernandez

Client Sample Description 13
exterior of window
Collected: 3/25/2011 *Lab ID:* 0005

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1221	ND	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1232	ND	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1242	ND	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1248	ND	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1254	370	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1260	ND	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1262	ND	120	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1268	ND	120	mg/Kg	4/5/2011	ehernandez

Client Sample Description 14
exterior of window
Collected: 3/25/2011 *Lab ID:* 0006

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	11000	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1221	ND	11000	mg/Kg	4/5/2011	ehernandez

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Fax: (508) 628-5488 Phone: (508) 628-5486

Project: **Spring Street School Shrewsbury**

Customer ID: UEC63
Customer PO:
Received: 03/28/11 12:00 PM
EMSL Order: 011101568

Analytical Results

Client Sample Description 14
exterior of window

Collected: 3/25/2011 *Lab ID:* 0006

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082	Aroclor-1232	ND	11000	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1242	ND	11000	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1248	ND	11000	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1254	120000	11000	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1260	ND	11000	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1262	ND	11000	mg/Kg	4/5/2011	ehernandez
3540C/8082	Aroclor-1268	ND	11000	mg/Kg	4/5/2011	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

01101568

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Street School
TOWN / CITY: Shrewsbury
WORK AREA: windows
STATE: MA

Analysis Type	Turnaround Time (x)				
	6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs

10-day turnaround

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
9	Caulk	door					
10	Caulk	interior of window					
11	Caulk	interior of window					
12	Caulk	exterior of window					
13	Caulk	exterior of window					
14	Caulk	exterior of window					

SAMPLED BY: Jason Berk 3-25-11 DATE/TIME:
RELINQUISHED BY: Jason Berk 3-25-11 DATE/TIME:
RECEIVED BY: RECEIVED 3/28/11 12:00 pm DATE/TIME:
RECEIVED IN LAB BY: BY: SA 1428 DATE/TIME:

EMSL Analytical, Inc.

http://www.emsl.com

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Westmont, NJ 08108
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Phone: (508) 628-5486
Fax: (508) 628-5488

11/3/2011

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 10/27/2011. The results are tabulated on the attached data pages for the following client designated project:

Spring Street School exterior window frames

The reference number for these samples is EMSL Order #011105419. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

ACCREDITED IN ACCORDANCE WITH nelac

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

EMSL Analytical, Inc.
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone: (508) 628-5486
Project: **Spring Street School exterior window frames**

Customer ID: UEC63
Customer PO:
Received: 10/27/11 10:30 AM
EMSL Order: 011105419

Analytical Results

Client Sample Description 1 — *Collected:* 10/26/2011 — *Lab ID:* 0001
Brick Area A Principals

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	170	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	25	mg/Kg	10/31/2011	ehernandez

Client Sample Description 2 — *Collected:* 10/26/2011 — *Lab ID:* 0002
Mortar Area A Principals

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	110	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	20	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	20	mg/Kg	10/31/2011	ehernandez

Client Sample Description 3 — *Collected:* 10/26/2011 — *Lab ID:* 0003
Stucco Area A Principals

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	0.88	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.50	mg/Kg	10/31/2011	ehernandez

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Universal Environmental Consultants
12 Brewster Road
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Fax: (508) 628-5488 Phone: (508) 628-5486
Project: **Spring Street School exterior window frames**

Customer ID: UEC63
Customer PO:
Received: 10/27/11 10:30 AM
EMSL Order: 011105419

Analytical Results

Client Sample Description 3 Stucco Area A Principals — *Collected:* 10/26/2011 — *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1268	ND	0.50	mg/Kg	10/31/2011	ehernandez

Client Sample Description 4 Brick Area B entry way — *Collected:* 10/26/2011 — *Lab ID:* 0004

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	540	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	100	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	100	mg/Kg	10/31/2011	ehernandez

Client Sample Description 5 Mortar Area B entry way — *Collected:* 10/26/2011 — *Lab ID:* 0005

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	180	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	25	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	25	mg/Kg	10/31/2011	ehernandez

Client Sample Description 6 Stucco Area B entry way — *Collected:* 10/26/2011 — *Lab ID:* 0006

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.99	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.99	mg/Kg	10/31/2011	ehernandez

EMSL Analytical, Inc.
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Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone: (508) 628-5486
Project: **Spring Street School exterior window frames**

Customer ID: UEC63
Customer PO:
Received: 10/27/11 10:30 AM
EMSL Order: 011105419

Analytical Results

Client Sample Description 6 — *Collected:* 10/26/2011 — *Lab ID:* 0006
Stucco Area B entry way

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1232	ND	0.99	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.99	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.99	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	18	0.99	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.99	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.99	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.99	mg/Kg	10/31/2011	ehernandez

Client Sample Description 7 — *Collected:* 10/26/2011 — *Lab ID:* 0007
Brick Area C rear canopy

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	30	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	2.5	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	2.5	mg/Kg	10/31/2011	ehernandez

Client Sample Description 8 — *Collected:* 10/26/2011 — *Lab ID:* 0008
Mortar Area C rear canopy

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	1400	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	200	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	200	mg/Kg	10/31/2011	ehernandez

EMSL Analytical, Inc.
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone: (508) 628-5486
Project: **Spring Street School exterior window frames**

Customer ID: UEC63
Customer PO:
Received: 10/27/11 10:30 AM
EMSL Order: 011105419

Analytical Results

Client Sample Description 9
Stucco Area C rear canopy

Collected: 10/26/2011 *Lab ID:* 0009

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082	Aroclor-1016	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1254	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.50	mg/Kg	10/31/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.50	mg/Kg	10/31/2011	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

01105419

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Street School
WORK AREA: exterior window frames
TOWN / CITY: Shrewsbury
STATE: MA

Analysis Type	Turnaround Time (x)				
	6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs
1 week Turnaround

	SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
(1)	1	Brick	Area A Principals					
(2)	2	mortar	Area A "					
(3)	3	stucco	Area A "					
(4)	4	Brick	Area B entryway					
(5)	5	mortar	Area B "					
(6)	6	stucco	Area B "					
(7)	7	Brick	Area C rear canopy					
(8)	8	mortar	Area C " "					
(9)	9	stucco	Area C " "					

RECEIVED
OCT 26 2011

SAMPLED BY: Jason Bewtle 10-26-11 DATE/TIME:	RECEIVED BY:	BY: 11:05 AM DATE/TIME:	
RELINQUISHED BY: Jason Bewtle 10-26-11 DATE/TIME:	RECEIVED IN LAB BY:	DATE/TIME:	

01110 5419

EMSL Analytical, Inc.
Relinquish Form

Initial Lab:	EMSL- Boston 7 Constitution Way Suite 107 Woburn, MA 01801	Phone Number:	781-933-8411
		Fax Number:	781-933-8412
Relinquished to:	EMSL- Westmont 3 Cooper Street Westmont, NJ 08108	Phone Number:	
		Fax Number:	
Does new Lab hold equivalent or additional accreditation*		☒ Yes	☐ No

EMSL Customer ID #:	UEC63
Client Name:	Universal Environmental Consultants Contact: Jason Becotte
Client Project:	Spring St. School, Exterior Window, Shrewsbury, MA - PCBs
Date Received:	10/26/11
Date Relinquished:	10/26/11
Date Due:	1 Week TAT from date/time received in NJ
Special Instructions:	PCBs email Ammar Dieb with results

Relinquished by (Signature):	Date: 10/26/11	Received by (Signature)	Date: 10/27/11
Relinquished by (Signature):	Date:	Received by (Signature)	Date:

Client Notification- Please sign this form and fax to the original laboratory. By signing below you agree to allow the above named laboratory to relinquish the samples to a new laboratory with equivalent or additional certification.

Name (please Print)	Signature	Agent of:	Date:

If this is a reoccurring project or sample type that will require samples to be relinquished on a regular basis please sign below and the laboratory will keep this form on file.

Name (please Print)	Signature	Agent of:	Date:

- All accreditation information and certificates can be found at www.emsl.com.

EMSL Analytical, Inc.

http://www.emsl.com

3 Cooper St.
Westmont, NJ 08108
Phone: (856) 858-4800
Fax: (856) 858-4571

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Phone: (508) 628-5486
Fax: (508) 628-5488

11/30/2011

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 11/25/2011. The results are tabulated on the attached data pages for the following client designated project:

Spring Street School windows

The reference number for these samples is EMSL Order #011105942. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

EMSL Analytical, Inc.
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Fax: (508) 628-5488 Phone: (508) 628-5486

Project: **Spring Street School windows**

Customer ID: UEC63
Customer PO:
Received: 11/25/11 10:30 AM
EMSL Order: 011105942

Analytical Results

Client Sample Description 1 Area A 2 inch — *Collected:* 11/23/2011 — *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1254	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.49	mg/Kg	11/28/2011	ehernandez

Client Sample Description 2 Area A 3 inch — *Collected:* 11/23/2011 — *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1254	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.49	mg/Kg	11/28/2011	ehernandez

Client Sample Description 3 Area A 5 inch — *Collected:* 11/23/2011 — *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1254	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.50	mg/Kg	11/28/2011	ehernandez

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone: (508) 628-5486
Project: **Spring Street School windows**

Customer ID: UEC63
Customer PO:
Received: 11/25/11 10:30 AM
EMSL Order: 011105942

Analytical Results

Client Sample Description 3
Area A 5 inch
Collected: 11/23/2011 *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1268	ND	0.50	mg/Kg	11/28/2011	ehernandez

Client Sample Description 4
Area B 2 inch
Collected: 11/23/2011 *Lab ID:* 0004

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1254	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.50	mg/Kg	11/28/2011	ehernandez

Client Sample Description 5
Area B 3 inch
Collected: 11/23/2011 *Lab ID:* 0005

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1232	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1254	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.50	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.50	mg/Kg	11/28/2011	ehernandez

Client Sample Description 6
Area B 5 inch
Collected: 11/23/2011 *Lab ID:* 0006

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082	Aroclor-1016	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1221	ND	0.49	mg/Kg	11/28/2011	ehernandez

EMSL Analytical, Inc.
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Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Fax: (508) 628-5488 Phone: (508) 628-5486

Project: **Spring Street School windows**

Customer ID: UEC63
Customer PO:
Received: 11/25/11 10:30 AM
EMSL Order: 011105942

Analytical Results

Client Sample Description 6
Area B 5 inch

Collected: 11/23/2011 *Lab ID:* 0006

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082	Aroclor-1232	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1242	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1248	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1254	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1260	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1262	ND	0.49	mg/Kg	11/28/2011	ehernandez
3540C/8082	Aroclor-1268	ND	0.49	mg/Kg	11/28/2011	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

011105942

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Street School
TOWN / CITY: Shrewsbury
WORK AREA: windows
STATE: MA

Analysis Type	Turnaround Time (x) 6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					X

Specific Project Notes

Test for PCBs Brick
72-hour turn around

	SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
(1)	1	Brick	Area A 2 inch					
(2)	2		Area A 3 inch					
(3)	3		Area A 5 inch					
(4)	4		Area B 2inch					
(5)	5		Area B 3inch					
(6)	6	Brick	Area B 5 inch					

RECEIVED
NOV 23 2011
BY: SA 1500

SAMPLED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
Jason Bewett	11-23-11		
RELINQUISHED BY:	**DATE/TIME:**	**RECEIVED IN LAB BY:**	**DATE/TIME:**
Jason Bewett	11-23-11	Jim Ott	11/25/11 10:30AM

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 3841 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	Y09848.D	**Sample Matrix:**	Soil /Solid
Instrument ID:	ECD-Y	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	4/1/2011
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	4/5/2011 9:28:37 AM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (mg/kg)	CONC. (mg/kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Solid / SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original** LCS 1 3841
File ID: Y09848.D/Y09849.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/kg	LCS CONC. mg/kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	1.36	91
2	Aroclor 1260	11096-82-5	33	130	1.50	1.45	97
				Total Out			0 of 2

EMSL Analytical Inc.

Soil / SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original File ID:** LCS 2 3841 Y09848.D/Y09850.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/kg	LCS CONC. mg/kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	1.32	88
2	Aroclor 1260	11096-82-5	33	130	1.50	1.37	91
				Total Out			0 of 2

EMSL Analytical Inc.

SOIL PESTICIDE/PCB SURROGATE RECOVERY

Lab Name: EMSL Analytical

*** : Values outside of QC limits**
D: Surrogate diluted out

	Compound Name:	TCX	TCX2	DCB	DCB2	Total Out
	CAS #:	877-09-8	877-09-8	2051-24-3	2051-24-3	
	QC Limits:	(10-125)	(10-125)	(10-207)	(10-207)	
5921-1 10X CU	11/28/11 13:11	67 D	69 D	66 D	84 D	0
5921-2 5X CU	11/28/11 13:26	66 D	69 D	62 D	83 D	0
5921-3 5X CU	11/28/11 13:42	82 D	86 D	83 D	108 D	0
5927-1 5X CU	11/28/11 13:57	92 D	102 D	91 D	114 D	0
MB 1 4118 CU	11/28/11 11:53	68	83	74	95	0
LCS 1 4118 CU	11/28/11 12:09	73	86	76	97	0
5856-14 10X CU	11/28/11 12:24	84 D	88 D	77 D	95 D	0
5856-15 10X CU	11/28/11 12:39	71 D	76 D	69 D	86 D	0
5856-16 10X CU	11/28/11 12:55	77 D	78 D	76 D	94 D	0
5928-1 2X CU	11/28/11 14:13	58 D	67 D	56 D	71 D	0
5932-2 PCB MS	11/28/11 16:24	87 D	87 D	92 D	111 D	0
5932-2 PCB MSD	11/28/11 16:39	81 D	80 D	88 D	107 D	0
5932-1 10X CU	11/28/11 16:55	80 D	86 D	87 D	107 D	0
5932-2 10X CU	11/28/11 17:10	88 D	95 D	93 D	113 D	0
5932-3 10X CU	11/28/11 17:26	74 D	80 D	89 D	110 D	0
5942-1 10X CU	11/28/11 17:41	85 D	91 D	97 D	120 D	0
5942-2 10X CU	11/28/11 17:57	94 D	98 D	98 D	122 D	0
5942-3 10X CU	11/28/11 18:12	90 D	94 D	100 D	124 D	0
5942-4 10X CU	11/28/11 18:28	89 D	96 D	94 D	116 D	0
5942-5 10X CU	11/28/11 18:43	92 D	98 D	101 D	124 D	0
5942-6 10X CU	11/28/11 18:59	90 D	95 D	94 D	118 D	0

TCX=Tetrachloro-m-xylene
DCB=Decachlorobiphenyl

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4118 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	X15504.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-X	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	11/25/2011
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	11/28/2011 11:53:00 AM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8011		

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Solid / SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original File ID:** LCS 1 4118 X15504.D/X15505.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/Kg	LCS CONC. mg/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	1.26	84
2	Aroclor 1260	11096-82-5	33	130	1.50	1.40	93
				Total Out			0 of 2

EMSL Analytical Inc.

Solid / SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 5932-2 PCB MS 10X X15521.D/X15518.D/X15519.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED mg/Kg	MS CONC. mg/Kg	MS REC%	MSD SPIKE ADDED mg/Kg	MSD CONC. mg/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	1.49	1.48	99	1.50	1.53	102	3
2	Aroclor 1260	11096-82-5	43	167	25	0.00	1.49	1.52	102	1.50	1.50	100	2
				Total Out					0 of 2			0 of 2	0 of 2

EMSL Analytical, Inc.

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Cinnaminson, NJ 08077
Phone: (856) 858-4800
Fax: (856) 858-4571

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Phone: (508) 628-5486
Fax: (508) 628-5488

2/3/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 12/5/2011. The results are tabulated on the attached data pages for the following client designated project:

Spring St. School Shrewsbury, Ma

The reference number for these samples is EMSL Order #011106050. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

Revised Report- The PCB method was revised due to a typographical error. – Original Report 12/8/11

EMSL Analytical, Inc.
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Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring St. School Shrewsbury, Ma**

Customer ID: UEC63
Customer PO:
Received: 12/05/11 10:30 AM
EMSL Order: 011106050

Analytical Results

Client Sample Description 1
North Side
Collected: *Lab ID:* *0001*

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
SM 2540G	Total Solids	84	N/A	%	12/6/2011	lvu
3540C/8082A	Aroclor-1016	ND	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1254	280	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1260	87	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	59	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	59	µg/Kg	12/7/2011	ehernandez

Client Sample Description 2
West Side
Collected: *Lab ID:* *0002*

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
SM 2540G	Total Solids	79	N/A	%	12/6/2011	lvu
3540C/8082A	Aroclor-1016	ND	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1254	280	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1260	97	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	63	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	63	µg/Kg	12/7/2011	ehernandez

Client Sample Description 3
South Side
Collected: *Lab ID:* *0003*

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
SM 2540G	Total Solids	81	N/A	%	12/6/2011	lvu
3540C/8082A	Aroclor-1016	ND	61	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	61	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	61	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	61	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	61	µg/Kg	12/7/2011	ehernandez

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring St. School Shrewsbury, Ma**

Customer ID: UEC63
Customer PO:
Received: 12/05/11 10:30 AM
EMSL Order: 011106050

Analytical Results

Client Sample Description 3
South Side
Collected: *Lab ID:* 0003

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082A	Aroclor-1254	360	61	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1260	200	61	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	61	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	61	µg/Kg	12/7/2011	ehernandez

Client Sample Description 4
East Side
Collected: *Lab ID:* 0004

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
SM 2540G	Total Solids	92	N/A	%	12/6/2011	lvu
3540C/8082A	Aroclor-1016	ND	54	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	54	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	54	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	54	µg/Kg	12/7/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	540	µg/Kg	12/6/2011	ehernandez
3540C/8082A	Aroclor-1254	2200	540	µg/Kg	12/6/2011	ehernandez
3540C/8082A	Aroclor-1260	ND	540	µg/Kg	12/6/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	540	µg/Kg	12/6/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	54	µg/Kg	12/7/2011	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

01110 6050

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Str School
WORK AREA: Soil Samples
TOWN / CITY: Shrewsbury
STATE: MA

Analysis Type	Turnaround Time (x) 6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs Soil

72-hour turn around

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
1	Soil	north side.					
2	"	west side					
3	"	south side					
4	soil	east side					

RECEIVED
DEC 02 2011
BY: Spc 1750
Wellch Env Boston

SAMPLED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
Jason Beaut	12-2-11		
RELINQUISHED BY:	**DATE/TIME:**	**RECEIVED IN LAB BY:**	**DATE/TIME:**
Jason Beaut	12-2-11	4°C Blue Ice	12/5/11 10:30AM

EMSL Analytical, Inc.

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Phone: (508) 628-5486
Fax: (508) 628-5488

12/13/2011

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 12/9/2011. The results are tabulated on the attached data pages for the following client designated project:

Spring Street School - soils 4 inch

The reference number for these samples is EMSL Order #011106160. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

The reporting limits for the PCB analysis on Sample -0002 are elevated due to matrix interference.

Soil samples for PCB analysis were incorrectly received in plastic bottles.

EMSL Analytical, Inc.
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring Street School - soils 4 inch**

Customer ID: UEC63
Customer PO:
Received: 12/09/11 11:00 AM
EMSL Order: 011106160

Analytical Results

Client Sample Description 1
east side south
Collected: 12/8/2011 *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	80	N/A	%	12/12/2011	lvu
3550B/8082	Aroclor-1016	ND	21	µg/Kg	12/12/2011	ehernandez
3550B/8082	Aroclor-1221	ND	21	µg/Kg	12/12/2011	ehernandez
3550B/8082	Aroclor-1232	ND	21	µg/Kg	12/12/2011	ehernandez
3550B/8082	Aroclor-1242	ND	21	µg/Kg	12/12/2011	ehernandez
3550B/8082	Aroclor-1248	ND	21	µg/Kg	12/12/2011	ehernandez
3550B/8082	Aroclor-1254	3100	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1260	400	21	µg/Kg	12/12/2011	ehernandez
3550B/8082	Aroclor-1262	ND	21	µg/Kg	12/12/2011	ehernandez
3550B/8082	Aroclor-1268	ND	21	µg/Kg	12/12/2011	ehernandez

Client Sample Description 2
east side middle
Collected: 12/8/2011 *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	78	N/A	%	12/12/2011	lvu
3550B/8082	Aroclor-1016	ND	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1221	ND	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1232	ND	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1242	ND	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1248	ND	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1254	ND	2100	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1260	1400	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1262	ND	210	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1268	ND	210	µg/Kg	12/13/2011	ehernandez

Client Sample Description 3
east side north
Collected: 12/8/2011 *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	77	N/A	%	12/12/2011	lvu
3550B/8082	Aroclor-1016	ND	22	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1221	ND	22	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1232	ND	22	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1242	ND	22	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1248	ND	22	µg/Kg	12/13/2011	ehernandez

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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring Street School - soils 4 inch**

Customer ID: UEC63
Customer PO:
Received: 12/09/11 11:00 AM
EMSL Order: 011106160

Analytical Results

Client Sample Description 3
east side north

Collected: 12/8/2011 *Lab ID:* 0003

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3550B/8082	Aroclor-1254	220	22	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1260	90	22	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1262	ND	22	µg/Kg	12/13/2011	ehernandez
3550B/8082	Aroclor-1268	ND	22	µg/Kg	12/13/2011	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4129 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	Y15237.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-Y	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	12/7/2011
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	12/7/2011 12:08:00 PM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	30 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3550B	**Sulfur Cleanup:**	N
Method:	SW846 8011		

CAS NO	COMPOUND	Report Limit (ug/Kg)	CONC. (ug/Kg)	Q
12674-11-2	Aroclor 1016	17		U
11104-28-2	Aroclor 1221	17		U
11141-16-5	Aroclor 1232	17		U
53469-21-9	Aroclor 1242	17		U
12672-29-6	Aroclor 1248	17		U
11097-69-1	Aroclor 1254	17		U
11096-82-5	Aroclor 1260	17		U
37324-23-5	Aroclor 1262	17		U
11100-14-4	Aroclor 1268	17		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Solid SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original** LCS 1 4129

File ID: Y15237.D/Y15238.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED ug/Kg	LCS CONC. ug/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	500	340	68
2	Aroclor 1260	11096-82-5	33	130	500	397	79
				Total Out			0 of 2

EMSL Analytical Inc.

Solid / SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 6061-2 PCB MS Y15242.D/Y15239.D/Y15240.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED ug/Kg	MS CONC. ug/Kg	MS REC%	MSD SPIKE ADDED ug/Kg	MSD CONC. ug/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	498	420	84	500	424	85	1
2	Aroclor 1260	11096-82-5	43	167	25	0.00	498	410	82	500	409	82	1
				Total Out					0 of 2			0 of 2	0 of 2

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 2 4129 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	X15837.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-X	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	12/12/2011
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	12/12/2011 5:56:18 PM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	30 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3550B	**Sulfur Cleanup:**	N
Method:	SW846 8011		

CAS NO	COMPOUND	Report Limit (ug/Kg)	CONC. (ug/Kg)	Q
12674-11-2	Aroclor 1016	17		U
11104-28-2	Aroclor 1221	17		U
11141-16-5	Aroclor 1232	17		U
53469-21-9	Aroclor 1242	17		U
12672-29-6	Aroclor 1248	17		U
11097-69-1	Aroclor 1254	17		U
11096-82-5	Aroclor 1260	17		U
37324-23-5	Aroclor 1262	17		U
11100-14-4	Aroclor 1268	17		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Solid/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original File ID:** LCS 2 4129 X15837.D/X15838.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED ug/Kg	LCS CONC. ug/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	500	345	69
2	Aroclor 1260	11096-82-5	33	130	500	401	80
				Total Out			0 of 2

01106160

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Street School
TOWN / CITY: Shrewsbury
WORK AREA: soils
STATE: MA
4 inch

Analysis Type	Turnaround Time (x)				
	6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs soil

48-hour turnaround

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
1	soil	east side south					
2	1	east side middle					
3	soil	east side north					

EMAILED - REC'D IN PLASTIC BAGS
12/9/11 -EZ

If Ammen Proceed w analysis w QC 12/9/11

RECEIVED
DEC 08 2011
BY:

SAMPLED BY: Jason Beede 12-8-11	DATE/TIME:	RECEIVED BY: 4°C BLUE ICE	DATE/TIME: 12/9/11 11:00A
RELINQUISHED BY: Jason Beede 12-8-11	DATE/TIME:	RECEIVED IN LAB BY:	DATE/TIME:

EMSL Analytical, Inc.

http://www.emsl.com

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Framingham, MA 01702
Phone: (508) 628-5486
Fax: (508) 628-5488

2/3/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 12/16/2011. The results are tabulated on the attached data pages for the following client designated project:

Spring Street School soil samples east side

The reference number for these samples is EMSL Order #011106275. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

Revised Report- The PCB method was revised due to a typographical error. – Original Report 12/20/11
The reporting limits for samples -0002 and -0004 are elevated due to matrix interference.
Samples were received in plastic containers.

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring Street School soil samples east side**

Customer ID: UEC63
Customer PO:
Received: 12/16/11 10:00 AM
EMSL Order: 011106275

Analytical Results

Client Sample Description 1
east side south
Collected: 12/14/2011 *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	80	N/A	%	12/17/2011	lvu
3540C/8082A	Aroclor-1016	ND	62	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	62	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	62	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	62	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	62	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1254	ND	310	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1260	85	62	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	62	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	62	µg/Kg	12/17/2011	ehernandez

Client Sample Description 2
east side middle
Collected: 12/14/2011 *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	81	N/A	%	12/17/2011	lvu
3540C/8082A	Aroclor-1016	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1254	ND	1200	µg/Kg	12/19/2011	ehernandez
3540C/8082A	Aroclor-1260	280	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	61	µg/Kg	12/17/2011	ehernandez

Client Sample Description 3
east side north
Collected: 12/14/2011 *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	79	N/A	%	12/17/2011	lvu
3540C/8082A	Aroclor-1016	ND	63	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	63	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	63	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	63	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	63	µg/Kg	12/17/2011	ehernandez

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486

Customer ID: UEC63
Customer PO:
Received: 12/16/11 10:00 AM
EMSL Order: 011106275

Project: **Spring Street School soil samples east side**

Analytical Results

Client Sample Description 3 east side north — *Collected:* 12/14/2011 — *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1254	ND	63	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1260	ND	63	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	63	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	63	µg/Kg	12/17/2011	ehernandez

Client Sample Description 4 east side south — *Collected:* 12/14/2011 — *Lab ID:* 0004

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	81	N/A	%	12/17/2011	lvu
3540C/8082A	Aroclor-1016	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	61	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	2500	µg/Kg	12/19/2011	ehernandez
3540C/8082A	Aroclor-1254	ND	2500	µg/Kg	12/19/2011	ehernandez
3540C/8082A	Aroclor-1260	ND	2500	µg/Kg	12/19/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	2500	µg/Kg	12/19/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	61	µg/Kg	12/17/2011	ehernandez

Client Sample Description 5 east side middle — *Collected:* 12/14/2011 — *Lab ID:* 0005

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	83	N/A	%	12/17/2011	lvu
3540C/8082A	Aroclor-1016	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1254	ND	300	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1260	120	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	60	µg/Kg	12/17/2011	ehernandez

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Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Spring Street School soil samples east side**

Customer ID: UEC63
Customer PO:
Received: 12/16/11 10:00 AM
EMSL Order: 011106275

Analytical Results

Client Sample Description 6
east side north

Collected: 12/14/2011 *Lab ID:* 0006

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
SM 2540G	Total Solids	83	N/A	%	12/17/2011	lvu
3540C/8082A	Aroclor-1016	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1221	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1232	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1242	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1248	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1254	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1260	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1262	ND	60	µg/Kg	12/17/2011	ehernandez
3540C/8082A	Aroclor-1268	ND	60	µg/Kg	12/17/2011	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4141 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	X15997.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-X	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	12/16/2011
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	12/17/2011 12:20:00 PM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8011		

CAS NO	COMPOUND	Report Limit (ug/Kg)	CONC. (ug/Kg)	Q
12674-11-2	Aroclor 1016	50		U
11104-28-2	Aroclor 1221	50		U
11141-16-5	Aroclor 1232	50		U
53469-21-9	Aroclor 1242	50		U
12672-29-6	Aroclor 1248	50		U
11097-69-1	Aroclor 1254	50		U
11096-82-5	Aroclor 1260	50		U
37324-23-5	Aroclor 1262	50		U
11100-14-4	Aroclor 1268	50		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Soil/wb/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original File ID:** LCS 1 4141 X15997.D/X15998.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED ug/Kg	LCS CONC. ug/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1500	1060	70
2	Aroclor 1260	11096-82-5	33	130	1500	1070	71
				Total Out			0 of 2

EMSL Analytical Inc.

Solid SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 6275-1 PCB MS X16001.D/X15999.D/X16000.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED ug/Kg	MS CONC. ug/Kg	MS REC%	MSD SPIKE ADDED ug/Kg	MSD CONC. ug/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	1870	1520	81	1870	1380	74	
2	Aroclor 1260	11096-82-5	43	167	25	84.7	1870	1610	82	1870	1410	71	
				Total Out					0 of 2			0 of 2	0 of

UEC universal environmental consultants
12 Brewster Road
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Phone: 508.628.5486
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011106275

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Street school
WORK AREA: soil samples east side
TOWN / CITY: Shrewsbury
STATE: MA

Analysis Type	Turnaround Time (x) 6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs

48-hour turn around

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
1	Soil 3 feet away	east side south					
2	" " "	east side middle					
3	" " "	east side north					
4	Soil 4 feet away	east side south					
5	" " "	east side middle					
6	" " "	east side north					

Per Ammar, OK to proceed with analysis (samples arrived in plastic bags)
11:14 AM 12/16/11 -EZ

RECEIVED
DEC 15 2011

4 C BLUE ICE

SAMPLED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
Jason Beroffe 12-14-11			12/16/11 10:00A
RELINQUISHED BY: Jason Beroffe 12-14-11	DATE/TIME:	RECEIVED IN LAB BY:	DATE/TIME: 8:32

EMSL Analytical, Inc.

http://www.emsl.com

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2/3/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 1/20/2012. The results are tabulated on the attached data pages for the following client designated project:

Spring Street School courtyard Shrewsbury MA

The reference number for these samples is EMSL Order #011200263. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

Revised Report- The PCB method was revised due to a typographical error. – Original Report 1/27/12
The reporting limits for samples -0001, -0002 and -0003 are elevated due to matrix interference.
Samples were received in plastic containers and above the temperature requirements.

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Universal Environmental Consultants
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Project: **Spring Street School courtyard Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 01/20/12 10:00 AM
EMSL Order: 011200263

Analytical Results

Client Sample Description 1 courtyard south — *Collected:* 1/17/2012 — *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	80	N/A	%	1/24/2012	lvu
3540C/8082A	Aroclor-1016	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	620	µg/Kg	1/27/2012	ehernandez

Client Sample Description 2 courtyard middle — *Collected:* 1/17/2012 — *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	74	N/A	%	1/24/2012	lvu
3540C/8082A	Aroclor-1016	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	1300	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	1300	µg/Kg	1/27/2012	ehernandez

Client Sample Description 3 courtyard north — *Collected:* 1/17/2012 — *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	80	N/A	%	1/24/2012	lvu
3540C/8082A	Aroclor-1016	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	620	µg/Kg	1/27/2012	ehernandez

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Project: **Spring Street School courtyard Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 01/20/12 10:00 AM
EMSL Order: 011200263

Analytical Results

Client Sample Description 3
courtyard north

Collected: 1/17/2012 *Lab ID:* 0003

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082A	Aroclor-1254	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	620	µg/Kg	1/27/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	620	µg/Kg	1/27/2012	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 2 4191 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	X16570.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-X	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	1/26/2012
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	1/27/2012 9:49:29 AM
GC Column 2:	CLPest I (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (ug/Kg)	CONC. (ug/Kg)	Q
12674-11-2	Aroclor 1016	50		U
11104-28-2	Aroclor 1221	50		U
11141-16-5	Aroclor 1232	50		U
53469-21-9	Aroclor 1242	50		U
12672-29-6	Aroclor 1248	50		U
11097-69-1	Aroclor 1254	50		U
11096-82-5	Aroclor 1260	50		U
37324-23-5	Aroclor 1262	50		U
11100-14-4	Aroclor 1268	50		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Solid/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original File ID:** LCS 2 4191 X16570.D/X16571.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED ug/Kg	LCS CONC. ug/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	58	123	1500	1380	92
2	Aroclor 1260	11096-82-5	63	131	1500	1430	95
				Total Out			0 of 2

EMSL Analytical Inc.

Solid / SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 0263-1 PCB MS 10X X16574.D/X16572.D/X16573.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED ug/Kg	MS CONC. ug/Kg	MS REC%	MSD SPIKE ADDED ug/Kg	MSD CONC. ug/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	1860	1940	104	1870	1960	105	0
2	Aroclor 1260	11096-82-5	43	167	25	0.00	1860	2040	110	1870	2130	114	4
				Total Out					0 of 2			0 of 2	0 of 2

0112 00263

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
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Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Street School
TOWN / CITY: Shrewsbury
WORK AREA: Courtyard
STATE: MA

Analysis Type	Turnaround Time (x)				
	6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs Soil
5-day turnaround

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
1	Soil	courtyard south					
2	soil	Courtyard middle					
3	soil	courtyard north					

Soil Samples read in plastic bags and not on ice per Ammar protocol

SAMPLED BY: Jason Benotte 1-17-12 DATE/TIME:
RELINQUISHED BY: Jason Benotte 1-17-12 DATE/TIME:
RECEIVED BY:
RECEIVED IN LAB BY:
RECEIVED JAN 19 2012 By
DATE/TIME:
DATE/TIME: 1/20/12 10:00 AM

EMSL Analytical, Inc.

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Phone: (508) 628-5486
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2/10/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 2/7/2012. The results are tabulated on the attached data pages for the following client designated project:

Spring St. School Shrewsbury MA East Side

The reference number for these samples is EMSL Order #011200554. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

The samples were received in plastic containers and above the temperature requirement. The reporting limit for sample -0002 are elevated due to matrix interference from Chlordane.

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Framingham, MA 01702

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Spring St. School Shrewsbury MA East Side**

Customer ID: UEC63
Customer PO:
Received: 02/07/12 9:30 AM
EMSL Order: 011200554

Analytical Results

Client Sample Description 1 East side South — *Collected:* 2/6/2012 — *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	82	N/A	%	2/7/2012	lvu
3540C/8082A	Aroclor-1016	ND	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1254	1900	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	61	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	61	µg/Kg	2/10/2012	ehernandez

Client Sample Description 2 East side Middle — *Collected:* 2/6/2012 — *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	86	N/A	%	2/7/2012	lvu
3540C/8082A	Aroclor-1016	ND	1200	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	1200	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	1200	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	1200	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	5800	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	5800	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	1200	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	1200	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	1200	µg/Kg	2/10/2012	ehernandez

Client Sample Description 3 East side North — *Collected:* 2/6/2012 — *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
SM 2540G	Total Solids	84	N/A	%	2/7/2012	lvu
3540C/8082A	Aroclor-1016	ND	59	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	59	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	59	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	59	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	59	µg/Kg	2/10/2012	ehernandez

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Spring St. School Shrewsbury MA East Side**

Customer ID: UEC63
Customer PO:
Received: 02/07/12 9:30 AM
EMSL Order: 011200554

Analytical Results

Client Sample Description 3
East side North

Collected: 2/6/2012 *Lab ID:* 0003

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082A	Aroclor-1254	690	59	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1260	610	59	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	59	µg/Kg	2/10/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	59	µg/Kg	2/10/2012	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4220 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	X16871.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-X	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	12/8/2011
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	2/9/2012 11:53:00 PM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (ug/Kg)	CONC. (ug/Kg)	Q
12674-11-2	Aroclor 1016	50		U
11104-28-2	Aroclor 1221	50		U
11141-16-5	Aroclor 1232	50		U
53469-21-9	Aroclor 1242	50		U
12672-29-6	Aroclor 1248	50		U
11097-69-1	Aroclor 1254	50		U
11096-82-5	Aroclor 1260	50		U
37324-23-5	Aroclor 1262	50		U
11100-14-4	Aroclor 1268	50		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Solid SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original** LCS 1 4220

File ID: X16871.D/X16872.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED ug/Kg	LCS CONC. ug/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	58	123	1500	1230	82
2	Aroclor 1260	11096-82-5	63	131	1500	1340	90
				Total Out			0 of 2

EMSL Analytical Inc.

Solid SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 0554-1 PCB MS X16875.D/X16873.D/X16874.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED ug/Kg	MS CONC. ug/Kg	MS REC%	MSD SPIKE ADDED ug/Kg	MSD CONC. ug/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	1820	1530	84	1830	1640	90	6
2	Aroclor 1260	11096-82-5	43	167	25	0.00	1820	2120	116	1830	2290	125	8
				Total Out					0 of 2			0 of 2	0 of 2

01120554

universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring St. School
WORK AREA: east side
TOWN / CITY: Shrewsbury
STATE: MA

Analysis Type	Turnaround Time (x)				
	6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCB soil
24-hour turnaround

	SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
(1)	1	soil	east side south					
(2)	2	soil	east side middle					
(3)	3	soil	east side north					

- Samples rcvd w/o ice and in plastic bags, per Ammar proceed w/ analysis AKG 2/8

SAMPLED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
Jason Beadle	2-6-12		
RELINQUISHED BY:	DATE/TIME:	RECEIVED IN LAB BY:	DATE/TIME:
Jason Beadle	2-6-12	[illegible] at	2/7/12 9:30AM

EMSL Analytical, Inc.

http://www.emsl.com

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Fax: (856) 858-4571

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Phone: (508) 628-5486
Fax: (508) 628-5488

2/16/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 2/13/2012. The results are tabulated on the attached data pages for the following client designated project:

Spring St. School Shrewsbury MA

The reference number for these samples is EMSL Order #011200658. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 04653, NY 10896, PA 68-00367

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

Revised Report- The Method Blank form 1A was revised to include the correct extraction date.. – Original Report 2/15/12

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring St. School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 02/13/12 9:30 AM
EMSL Order: 011200658

Analytical Results

Client Sample Description 1
2" from window
Collected: 2/10/2012 *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.49	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.49	mg/Kg	2/15/2012	ehernandez

Client Sample Description 2
3" from window
Collected: 2/10/2012 *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	2/15/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	2/15/2012	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4227 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	X16983.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-X	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	2/14/2012
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	2/15/2012 10:30:00 AM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

Solid / SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original** LCS 1 4227

File ID: X16983.D/X16984.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/Kg	LCS CONC. mg/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	58	123	1.50	1.29	86
2	Aroclor 1260	11096-82-5	63	131	1.50	1.38	92
				Total Out			0 of 2

EMSL Analytical Inc.

Soil SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original** 0658-2 PCB MS 10X

File ID: X16988.D/X16985.D/X16986.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED mg/Kg	MS CONC. mg/Kg	MS REC%	MSD SPIKE ADDED mg/Kg	MSD CONC. mg/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	1.48	1.43	97	1.48	1.43	97	0
2	Aroclor 1260	11096-82-5	43	167	25	0.00	1.48	1.50	101	1.48	1.47	99	2
				Total Out					0 of 2			0 of 2	0 of 2

01120058

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring St. School
WORK AREA: Rear canopy window
TOWN / CITY: Shrewsbury
STATE: MA

Analysis Type	Turnaround Time (x) 6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs Brick
24 hour turn around

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
1	Brick	2" from window					
2	Brick	3" from window					

RECEIVED
FEB 10 2012
EMSL BOSTON
By SPA 1500
walk-in

per Ammar,
2 day TAT ok
2/13/12 11:45AM -TA

SAMPLED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
Jason Bewtt	2-10-12		
RELINQUISHED BY:	DATE/TIME:	RECEIVED IN LAB BY:	DATE/TIME:
Jason Bewtt	2-10-12	[signature]	2/13/12 9:30AM

01201691

UEC universal environmental consultants
12 Brewster Road Phone: 508.628.5486
Framingham, MA 01702 Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring St. School
TOWN / CITY: Shrewsbury
WORK AREA: exterior
STATE: MA

Analysis Type	Turnaround Time (x)				
	6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs
5-day turn around ok
*Per Ammar Change to 2 Day TAT 4/13 ok

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
1	Stucco	entryway					
2	Stucco	office					
3	Stucco	rear classroom					

Samples received in plastic, No Ice
4/13 9:30 AM -TA

*Per Ammar ok to Proceed, Sampled 4/11 ok 4/13

SAMPLED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
Jason Beck			
RELINQUISHED BY:	DATE/TIME:	RECEIVED IN LAB BY:	DATE/TIME:
Jason Beck		✓ - at 4/13/12	

RECEIVED
APR 12 2012
By SA 0830

EMSL Analytical, Inc.

http://www.emsl.com

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Universal Environmental Consultants
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Framingham, MA 01702
Phone: (508) 628-5486
Fax: (508) 628-5488

4/17/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 4/13/2012. The results are tabulated on the attached data pages for the following client designated project:

Spring St. School Shrewsbury MA

The reference number for these samples is EMSL Order #011201691. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

ACCREDITED IN ACCORDANCE WITH nelac

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10896, PA 68-00367

The PCB samples were received in plastic containers and outside the temperature requirement.

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring St. School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 04/13/12 9:30 AM
EMSL Order: 011201691

Analytical Results

Client Sample Description 1 — *Collected:* 4/11/2012 — *Lab ID:* 0001
Entryway, Stucco

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1254	3.3	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/16/2012	ehernandez

Client Sample Description 2 — *Collected:* 4/11/2012 — *Lab ID:* 0002
Office, Stucco

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1254	4.6	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/16/2012	ehernandez

Client Sample Description 3 — *Collected:* 4/11/2012 — *Lab ID:* 0003
Rear Classroom, Stucco

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/16/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/16/2012	ehernandez

EMSL Analytical, Inc.
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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring St. School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 04/13/12 9:30 AM
EMSL Order: 011201691

Analytical Results

Client Sample Description 3
Rear Classroom, Stucco

Collected: 4/11/2012 *Lab ID:* 0003

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/16/2012	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4308 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	Y17590.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	GC-ECD-Y	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	4/13/2012
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	4/16/2012 2:25:00 PM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

SOLID/ SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original File ID:** LCS 1 4308 Y17590.D/Y17591.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/Kg	LCS CONC. mg/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	1.36	91
2	Aroclor 1260	11096-82-5	33	130	1.50	1.48	99
				Total Out			0 of 2

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 1678-1 PCB MS 10X Y17627.D/Y17625.D/Y17626.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED mg/Kg	MS CONC. mg/Kg	MS REC%	MSD SPIKE ADDED mg/Kg	MSD CONC. mg/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	1.64	2.20	134	1.66	1.93	116	14
2	Aroclor 1260	11096-82-5	43	167	25	0.00	1.64	3.28	200 *	1.66	2.66	160	22
				Total Out					1 of 2			0 of 2	0 of 2

EMSL Analytical, Inc.

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4/9/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 3/30/2012. The results are tabulated on the attached data pages for the following client designated project:

Spring Street School Shrewsbury MA

The reference number for these samples is EMSL Order #011201460. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:

Julie Smith - Laboratory Director or other approved signatory

The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10896, PA 68-00367

Revised Report- Conditional samples -0007 through -0012 were analyzed at the client's request. – Original Report 4/4/12
The PCB samples were received in plastic containers and outside the temperature requirement.

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Project: **Spring Street School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 03/30/12 9:30 AM
EMSL Order: 011201460

Analytical Results

Client Sample Description 1 Entry Mortar 2" *Collected:* 3/28/2012 *Lab ID:* 0001

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez

Client Sample Description 2 Office Mortar 2" *Collected:* 3/28/2012 *Lab ID:* 0002

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1254	2.0	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez

Client Sample Description 3 Rear Mortar 2" *Collected:* 3/28/2012 *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1254	1.0	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez

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Fax: (508) 628-5488 Phone (508) 628-5486
Project: **Spring Street School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 03/30/12 9:30 AM
EMSL Order: 011201460

Analytical Results

Client Sample Description 3 Rear Mortar 2" *Collected:* 3/28/2012 *Lab ID:* 0003

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez

Client Sample Description 4 Entry Stucco 2" *Collected:* 3/28/2012 *Lab ID:* 0004

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1254	15	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez

Client Sample Description 5 Office Stucco 2" *Collected:* 3/28/2012 *Lab ID:* 0005

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1254	3.4	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.49	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.49	mg/Kg	4/2/2012	ehernandez

Client Sample Description 6 Rear Stucco 2" *Collected:* 3/28/2012 *Lab ID:* 0006

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez

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Project: **Spring Street School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 03/30/12 9:30 AM
EMSL Order: 011201460

Analytical Results

Client Sample Description 6 Rear Stucco 2" *Collected:* 3/28/2012 *Lab ID:* 0006

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez

Client Sample Description 7 Entry Mortar 3" *Collected:* 3/28/2012 *Lab ID:* 0007

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/6/2012	ehernandez

Client Sample Description 8 Office Mortar 3" *Collected:* 3/28/2012 *Lab ID:* 0008

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1254	0.66	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/6/2012	ehernandez

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Project: **Spring Street School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 03/30/12 9:30 AM
EMSL Order: 011201460

Analytical Results

Client Sample Description 9 Rear Mortar 3" *Collected:* 3/28/2012 *Lab ID:* 0009

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1266	ND	0.50	mg/Kg	4/6/2012	ehernandez

Client Sample Description 10 Entry Stucco 3" *Collected:* 3/28/2012 *Lab ID:* 0010

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1254	7.4	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/6/2012	ehernandez

Client Sample Description 11 Office Stucco 3" *Collected:* 3/28/2012 *Lab ID:* 0011

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/8/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1254	10	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/6/2012	ehernandez

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Project: **Spring Street School Shrewsbury MA**

Customer ID: UEC63
Customer PO:
Received: 03/30/12 9:30 AM
EMSL Order: 011201460

Analytical Results

Client Sample Description 11 Office Stucco 3" *Collected:* 3/28/2012 *Lab ID:* 0011

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/6/2012	ehernandez

Client Sample Description 12 Rear Stucco 3" *Collected:* 3/28/2012 *Lab ID:* 0012

Method	*Parameter*	*Result*	*Reporting Limit*	*Units*	*Analysis Date*	*Analyst*
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/6/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/6/2012	ehernandez

Definitions:
ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4291 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	Y17269.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	GC-ECD-Y	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	3/30/2012
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	4/2/2012 3:28:26 PM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name:	EMSL Analytical			**Original File ID:**	LCS 1 4291 Y17269.D/Y17270.D		
*** : Values outside of**							
	COMPOUND	**CAS NO**	**LOW LIMIT**	**HIGH LIMIT**	**SPIKE ADDED mg/Kg**	**LCS CONC. mg/Kg**	**LCS REC%**
1	Aroclor 1016	12674-11-2	31	122	1.50	0.916	61
2	Aroclor 1260	11096-82-5	33	130	1.50	1.15	77
				Total Out			0 of 2

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 1399-1 PCB MS 10X Y17287.D/Y17285.D/Y17286.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED mg/Kg	MS CONC. mg/Kg	MS REC%	MSD SPIKE ADDED mg/Kg	MSD CONC. mg/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	1.50	1.44	96	1.49	1.44	96	1
2	Aroclor 1260	11096-82-5	43	167	25	0.00	1.50	1.40	94	1.49	1.43	96	3
				Total Out					0 of 2			0 of 2	0 of 2

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MB 1 4297 CU
Lab Name:	EMSL Analytical		
EMSL Sample ID:		**Project:**	
Lab File ID:	X18199.D	**Sample Matrix:**	Solid/Soil
Instrument ID:	ECD-X	**Sampling Date:**	12:00:00 AM
Analyst:	EH	**Date Extracted:**	4/5/2012
GC Column:	CLPest I (0.25 mm)	**Analysis Date**	4/9/2012 9:25:17 AM
GC Column 2:	CLPest II (0.25 mm)	**Sample wt/vol:**	10 G
% Moisture:	0	**Dilution Factor:**	1
PH:	0	**Concentrated Extract Vol:**	10 (mL)
GPC Cleanup(Y/N):	N	**Injection Volume:**	1 (ul)
Extraction Type:	3540C	**Sulfur Cleanup:**	N
Method:	SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
D = Dilution
P = Results between the two columns differ >40%

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical **Original** LCS 1 4297
File ID: X18199.D/X18200.D
*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/Kg	LCS CONC. mg/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	1.36	91
2	Aroclor 1260	11096-82-5	33	130	1.50	1.49	99
				Total Out			0 of 2

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Analytical **Original File ID:** 1529-9 PCB MS 8X X18201.D/X18209.D/X18210.D

*** : Values outside of**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED mg/Kg	MS CONC. mg/Kg	MS REC%	MSD SPIKE ADDED mg/Kg	MSD CONC. mg/Kg	MSD REC%	RPD %
1	Aroclor 1016	12674-11-2	12	164	25	0.00	3.61	3.31	92	7.11	7.06	99	8
2	Aroclor 1260	11096-82-5	43	167	25	0.00	3.61	3.59	99	7.11	7.42	104	5
				Total Out					0 of 2			0 of 2	0 of 2

011201460

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Spring Street School
TOWN / CITY: Shrewsbury
WORK AREA: exterior
STATE: MA

Analysis Type	Turnaround Time (x)				
	6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Test for PCBs 3-day turn around
If 1 → 6 are <1 ppm stop analysis.

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
1	mortar 2"	entry					
2	mortar 2"	office					
3	mortar 2"	rear					
4	stucco 2"	entry					
5	stucco 2"	office					
6	stucco 2"	rear					
7	mortar 3"	entry					
8	mortar 3"	office					
9	mortar 3"	rear					
10	stucco 3"	entry					
11	stucco 3"	office					
12	stucco 3"	rear					
	per Ann can finish samples 7-12 on a 2 day pat.						

RECEIVED
MAR 29 2012
By SL 11:50

SAMPLED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
Jason Beaudet 3-28-12			
RELINQUISHED BY:	DATE/TIME:	RECEIVED IN LAB BY:	DATE/TIME:
		3/30/12	

APPENDIX C

SECTION 013543

PCB MATERIAL REMOVAL AND ENCAPSULATION

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This demolition, renovation or abatement Project will include the removal and disposal of non-liquid PCB Bulk Materials and PCB Remediation Waste (herein referred to as "PCB materials") at the Spring Street Elementary School in Shrewsbury, Massachusetts.

B. The work shall include but not be limited to the removal of window and door units for bulk loading, exterior window/door caulking, and encapsulation of adjacent brick and mortar impacted by PCBs.

C. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work.

D. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.

E. Working hours shall be as required and approved by the Owner. PCB material removal activities including, but not limited to, work area preparation, gross removal activities, cleaning activities, waste removal, etc. may need to be performed during 'off-hours' (including nights and weekends). In addition, multiple mobilizations may be required to perform the work identified in this project. The Contractor shall coordinate and schedule all Work with the facility and Owner's representative.

1.02 SPECIAL JOB CONDITIONS

A. Any special job conditions are described below.

1.03 PERMITS AND COMPLIANCE

A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.

B. Perform PCB related Work in accordance with EPA Regulations at 40 CFR 761 (Toxic Substances Control Act), MADEP Hazardous Waste Regulations 310 CMR 30 & Massachusetts Contingency Plan Regulations at 310 CMR 40.0000, OSHA Regulations at 29 CFR 1910.1000, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.

C. The Contractor must maintain current certificates of training, licenses or registrations pursuant to OSHA, MADEP and EPA regulations for all Work related to this Project, including the removal, handling, transport, and disposal of hazardous and industrial waste.

D. The Contractor shall be prepared to obtain an EPA ID number if so directed by the Owner.

E. Failure to adhere to the Project Documents shall constitute a breach of the Contract and the Owner shall have the right to and may terminate the Contract provided, however, the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.

1.04 SUBMITTALS

A. Pre-Work Submittals: Within 7 days prior to the pre-construction conference, the Contractor shall submit 3 copies of the documents listed below for review and approval prior to the commencement of PCB abatement activities:

1. Progress Schedule:
   a. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
   b. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.
2. Contractor Work Plan: Provide plans that clearly indicate the following:
   a. All Work Areas/containments numbered sequentially.
   b. Entrances and exits to the Work Areas/containments.
   c. Type of abatement activity/technique for each Work Area/containment.
   d. Methods used for equipment decontamination.
   e. Proposed location and construction of storage facilities and field office.
3. Identification of Disposal Site/Landfill Permit from applicable regulatory agency.
4. Letter identifying the presence of PCB bulk product waste, with Acknowledgement by the landfill. See section 4.01.A
5. MADEP Hazardous Waste Transporter Permit.
6. Copies of all current worker HAZMAT training certificates.

B. On-Site Submittals: Refer to Part 3.01.B for all submittals, documentation, and postings required to be maintained on-site during abatement activities.

C. Project Close-out Submittals: Within 30 days after project completion, the Contractor shall submit 4 copies of the documents listed below. One set of the documents shall be forwarded to the Owner and Consultant for review and approval prior to the Contractor's final payment.

1. **Originals** of all waste disposal manifests and disposal logs.
2. Daily progress log.
3. A list of all Workers used in the performance of the Project, including name and last 4 digits of social security number.
4. Disposal Site/Landfill Permit from applicable regulatory agency.
5. Copy of PCB notification with acknowledgement from the disposal facility/landfill, if applicable.

1.05 PRE-CONSTRUCTION CONFERENCE

A. Prior to start of preparatory Work under this Contract, the Contractor shall attend a pre-construction conference attended by Owner, Facility Personnel, and Environmental Consultant.

B. Agenda for this conference shall include but not necessarily be limited to:

1. Contractor's scope of Work, Work plan, and schedule to include number of workers and shifts.
2. Contractor's safety and health precautions including protective clothing and equipment and decontamination procedures.
3. Environmental Consultant's duties, functions, and authority.
4. Contractor's Work procedures including:
   a. Methods of job site preparation and removal methods.
   b. Disposal procedures.
   c. Cleanup procedures.
   d. Fire exits and emergency procedures.

5. Contractor's required pre-work and on-site submittals, documentation, and postings.
6. Contractor's plan for twenty-four (24) hour Project security both for prevention of theft and for barring entry of unauthorized personnel into Work Areas.
7. Temporary utilities.
8. Handling of furniture and other moveable objects.
9. Storage of removed PCB materials.
10. Waste disposal requirements and procedures.

C. In conjunction with the conference the Contractor shall accompany the Owner and Environmental Consultant on a pre-construction walk-through documenting existing condition of finishes and furnishings, reviewing overall Work plan, location of fire exits, fire protection equipment, water supply and temporary electric tie-in.

1.06 APPLICABLE STANDARDS AND REGULATIONS

A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:

B. Federal Regulations:
1. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
2. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
3. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
4. 29 CFR 1926, "Construction Industry" (OSHA)
5. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
6. 40 CFR 761, "PART 761—POLYCHLORINATED BIPHENYLS (PCBs)" (EPA)
7. 49 CFR 171-173, Transportation Standards (DOT)

C. Massachusetts State Regulations:
1. 310 CMR 40.0000, "Massachusetts Contingency Plan"
2. 310 CMR 30.0000, "Hazardous Waste Regulations"

D. Standards and Guidance Documents:
1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection

1.07 PROJECT MONITORING

A. The Owner shall engage the services of an Environmental Consultant (the Consultant) who shall serve as the Owner's Representative in regard to the performance of the PCB abatement Project.

B. The Contractor is required to ensure cooperation of its personnel with the Consultant for the sampling and Project monitoring functions described in this section.

C. The Consultant shall provide the following administrative services:
1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
2. Assure that all notifications to governmental agencies or landfills by the Contractor are submitted in a timely manner and are correct in content.
3. Review and approve the Contractor's compliance testing laboratory.

D. The Consultant shall staff the Project with a trained person(s) to act on the Owner's behalf at the job site. This individual shall be designated as the Abatement Project Monitor (APM).

1. The APM shall have the authority to Stop Work when gross Work practice deficiencies or unsafe practices are observed.

a. Such Work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been corrected.
b. Standby time required to resolve the situation shall be at the Contractor's expense.

3. The APM shall provide the following services:
   a. Inspection of the Contractor's Work, practices, and procedures, including temporary protection requirements, for compliance with all regulations and Project specifications.
   b. Monitor the progress of the Contractor's Work, and report any deviations from the schedule to the Owner.
   c. Monitor, verify, and document all waste load-out operations.
   d. The APM shall maintain a log on site that documents all project related and Consultant and Contractor actions, activities, and occurrences.
   e. The APM shall take air, swipe, wipe, or bulk samples upon the Owner's request.

4. The following inspections shall be conducted by the APM. Additional inspections shall be conducted as required by Project conditions. Progression from one phase of Work to the next by the Contractor is only permitted with the written approval of the APM.
   a. Pre-Construction Inspection: The purpose of this inspection is to verify the existing conditions of the Work Areas and to document these conditions.
   b. Pre-Commencement Inspection: This inspection shall take place only after the Work Area is fully prepped for removal.
   c. Work Inspections: The purpose of this inspection is to monitor the Work practices and procedures employed on the Project and to monitor the continued integrity of the containment system. Inspections within the removal areas shall be conducted by the APM during all preparation, removal, and cleaning activities at least twice every Work shift. Additional inspections shall be conducted as warranted.
   d. Visual Clearance Inspection: The purpose of this inspection is to verify that: all materials in the scope of work have been properly removed; no visible PCB material debris/residue remains.
   e. Punch List Inspection: The purpose of this inspection is to verify the Contractor's certification that all Work has been completed as contracted and the existing condition of the area prior to its release to the Owner.

5. The Owner may, at his discretion, choose to conduct air sampling. If air samples collected during abatement indicate any airborne PCB concentration(s) above the OSHA PEL of 0.5 mg/m3 or EPA recommended thresholds, work shall be stopped immediately and Work methods shall be altered to reduce the airborne PCB concentration(s).

1.08 PROJECT SUPERVISOR

A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:

1. The Project Supervisor shall be trained in PCB removal and hazardous waste management via a 40-hour HAZWOPER/Supervisor training course.

2. The Project Supervisor shall have a minimum of one year experience as a supervisor.

3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.

B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete. The Project Supervisor cannot be

removed from the Project without the written consent of the Owner. The Project Supervisor shall be removed from the Project if so requested by the Owner.

C. The Project Supervisor shall maintain a bound Daily Project Log that includes the Waste Disposal Log required by section 4.03 of the specifications.

D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the APM.

1.09 TRAINING

A. As required by applicable regulations, prior to assignment to PCB Work instruct each employee with regard to the hazards of PCBs, safety and health precautions, and the use and requirements of protective clothing and equipment.

B. Employees managing Hazardous Waste as described in Section 3.03 must also meet the OSHA Personnel training requirements.

1.10 RESPIRATORY PROTECTION

A. Establish a respirator program as required by ANSI Z88.2 and 29 CFR 1910.134. Provide respirator training.

B. Select respirators from those approved by the Mine Safety and Health Administration (MSHA), and the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services. High Efficiency Particulate Air (HEPA) respirator filters shall be approved by NIOSH and shall conform to the OSHA requirements in 29 CFR 1910.134.

C. Respirators shall be individually fit-tested to personnel under the direction of an Industrial Hygienist on a yearly basis. Fit-tested respirators shall be permanently marked to identify the individual fitted, and use shall be limited to that individual.

D. The Contractor shall provide and make available a sufficient quantity of respirator filters so that filter changes can be made as necessary during the work day.

E. Any authorized visitor, Worker, or supervisor found in the Work Area not wearing the required respiratory protection shall be removed from the Project site and not be permitted to return.

1.11 DELIVERY AND STORAGE

A. Deliver all materials to the job site in original packages with containers bearing manufacturer's name and label.

B. Store all materials at the job site in a suitable and designated area.
   1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.
   2. Protect materials from unintended contamination and theft.
   3. Storage areas shall be kept clean and organized.

C. Remove damaged or deteriorated materials from the job site. Materials contaminated with PCB shall be disposed of as PCB material as specified herein.

1.12 TEMPORARY UTILITIES

A. Where available, obtain power from Owner's existing system. Otherwise provide power from other sources (i.e. generator).
   1. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
   2. Provide wiring and receptacles as required by the Environmental Consultant for air sampling equipment.

B. Provide temporary lighting for all Work Areas.
   1. The entire Work Area shall be kept illuminated at all times.
   2. Provide lighting as required by the Environmental Consultant for the purposes of performing required inspections.

C. Utilize domestic water service, if available, from Owner's existing system.

PART 2 PRODUCTS

2.01 PROTECTIVE CLOTHING

A. Provide personnel utilized during the Project with disposable protective whole body clothing, head coverings, and foot coverings. Provide disposable plastic or rubber gloves to protect hands.

B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.

C. Eye protection and hard hats shall be provided and made available for all personnel entering any Work Area.

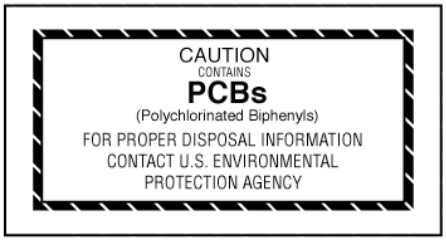
D. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.02 SIGNS AND LABELS, CONTAINERS

A. Provide warning signs and barrier tapes at all approaches to PCB Work Areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.

B. Provide the appropriate “Large PCB Marking” or “Small PCB Marking” (M_L or M_S per 40 CFR 761.40 & 761.45) as shown below, of sufficient size to be clearly legible, for display on waste containers (bags, boxes, roll-offs or drums) which will be used to contain or transport PCB contaminated material, in accordance with 40 CFR 761. In addition, U.S. Department of Transportation (DOT) 49 CFR Parts 171 and 172 requires the name and UN number of the material to be on the bags or drums, and, if shipped in bulk (roll-offs, Gaylord boxes, etc.) the bulk container must also be labeled: Polychlorinated biphenyl, solid mixture UN 3432.

M_L



M_S

C. The PCB materials are also Hazardous Waste, and must have a label stating the following on each container :

HAZARDOUS WASTE--Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority, or the U.S. Environmental Protection Agency.

Generator's Name and Address
Generator's EPA Identification Number
Manifest Tracking Number _____

D. Provide 6 mil polyethylene disposal bags with PCB caution labels.
   1. The "Small PCB Label" (M_S per 40 CFR 761.45) may be used as shown above. Bags shall also be labeled with U.S. DOT required markings per 49 CFR 172, Polychlorinated biphenyl, solid mixture UN 3432.
   2. Labeled PCB waste containers or bags shall not be used for non-PCB waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as PCB waste.

2.03 DAILY PROJECT LOG

A. Provide a Daily Project Log. The log shall contain on title page the Project name, name, address and phone number of Owner; name, address and phone number of Environmental Consultant; name, address and phone number of Abatement Contractor; emergency numbers including, but not limited to local Fire/Rescue department.

B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.

C. The Project Supervisor shall document all Work performed daily and note all inspections.

2.04 SCAFFOLDING AND LADDERS

A. Provide all scaffolding and/or staging as necessary to accomplish the Work of this Contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding and ladders shall comply with all applicable OSHA construction industry standards.

B. Provide scaffolding and ladders as required by the Environmental Consultant for the purposes of performing required inspections.

2.05 SHIPPING CONTAINERS AND PACKAGING

A. Provide packaging in accordance with 49 CFR 173 Packaging Group 9, such as 30 or 55 gallon capacity fiber, plastic, or metal drums, Gaylord Boxes or other Intermediate Bulk Containers (IBCs), or non-siftable bulk containers, capable of being sealed air and water tight if PCB waste has the potential to damage or puncture disposal bags. Affix PCB caution labels on lids of drums, and opposite sides of drums or bulk containers, as well as the ends of bulk containers.

2.06 EQUIPMENT AND MATERIALS

A. All dry vacuuming performed under this contract shall be performed with High Efficiency Particulate Absolute (HEPA) filter equipped industrial vacuums conforming to ANSI Z9.2.

B. Any power tools used to drill, cut into, or otherwise disturb PCB material shall be manufacturer equipped with HEPA filtered local exhaust ventilation.

C. All polyethylene (plastic) sheeting used on the Project (including but not limited to sheeting used for critical and isolation barriers, fixed objects, walls, floors, ceilings, waste container) shall be at least 6 mil fire retardant sheeting.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Should visible PCB debris be observed outside the Work Area, immediately stop work, notify the Owner; institute emergency procedures as directed. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.

B. The following submittals, documentation, and postings shall be maintained on-site by the Contractor during abatement activities at a location approved by the Abatement Project Monitor:
1. MADEP Waste Transporter Permit.
2. Project documents (specifications and drawings.)
3. Applicable regulations.
4. Material Safety Data Sheets of supplies/chemicals used on the Project.
5. Approved Abatement Work Plan.
6. List of emergency telephone numbers.
7. Waste Disposal Log.
8. Daily Project Log.

C. The following documentation shall be maintained on-site by the Abatement Project Monitor during abatement activities:
1. Project Monitor Daily Log.
2. PCB Survey Report.

3.02 WORK AREA PREPARATION

A. PCB caution signs shall be posted at all approaches to the PCB Work Area. Post all emergency exits as emergency exits only on the Work Area side, post with PCB caution signs on the non-Work Area side. Provide all non-Work Area stairs and corridors accessible to the PCB Work Area with warning tapes at the

base of stairs and beginning of corridors. Warning tapes shall be in addition to caution signs.

B. Access to areas of work shall be regulated to prevent unauthorized visitors.

C. For Exterior Removal:
1. All ground surfaces exterior to the work area shall have a layer of 6 mil polyethylene sheeting, continuously attached to the building face and laid down on the surface below the exterior abatement work area, at least 10 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further.
2. All operable windows within the work area and 25 ft. from all sides of the work area shall be closed.
3. In the vicinity of the removals, isolate all HVAC equipment intakes by temporarily shutting down units during removals and installing plastic sheeting over the opening.

3.03 REMOVAL OF PCB MATERIALS - GENERAL

A. PCB-containing materials shall be removed in accordance with the Contract Documents and the approved PCB Work Plan. *Note that plans are to remove these materials (i.e., windows and doors) as a unit and bulk load them for disposal. It is not the intention to separate PCB-containing material such as caulk or glazing from the units prior to removal. However, in the event that this is not feasible, the following restrictions apply.*

B. Non-PCB items such as windows, doors, masonry, and all other building construction and components from which PCB materials are removed shall be decontaminated by physical or chemical means (such as stripper) such that no *visible* residue remains. The removal of the PCB materials may require the use of scrapers, solvents, mastic removal chemicals, or other methods/procedures to ensure complete removal.

C. Mechanical cutting or grinding of PCB materials is not permitted, unless the equipment has factory-equipped HEPA filtered exhaust.

D. Remove accessible caulk that could be disturbed before cutting building components, such as window frames.

E. All removed PCB Bulk Material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate. Large components with PCB Bulk Material or PCB residue shall be wrapped in one layer of 6 mil polyethylene sheeting. Sharp components likely to tear disposal bags shall be placed in fiber drums or boxes and then wrapped with sheeting.

F. Power or pressure washers are not permitted for PCB removal or clean-up procedures.

G. All construction and demolition debris determined by the Environmental Consultant to be contaminated with PCB shall be handled and disposed of as PCB Remediation Waste. If the 40 CFR 761 Subpart S double wash- rinse technique is used to decontaminate *non-porous* surfaces such as metal surfaces with non-porous coatings, movable equipment, tools, and sampling equipment, sampling is not required and the material may be considered non-PCB. Note that post-abatement verification sampling of the rooms is the responsibility of the Consultant.

H. All PCB waste must be located at or near the point of generation, under the control of the Project Supervisor. Up to 55 gallons may be stored at the point of generation for an indefinite period, but any more than 55 gallons must be moved within 3 days to a Container Storage Area (CSA) as specified in 310 CMR 30.340 (6), or off-site. PCB Waste may be stored at the CSA for 90 days, during which labeling, inspections, and other requirements must be met as described in 310 CMR 30.341(2) and 40 CFR 761.40, 761.45, and 761.65.

I. Closure of the CSA. If an EPA ID number and CSA were created specifically for the PCB removal

work, the Contractor must also close out the CSA and the Consultant shall notify the MADEP/EPA that the hazardous waste activity has concluded, and that the storage area is to be closed.

J. The Contractor is required to provide temporary protection of the building (i.e., roof, window openings, construction joints, etc.) at the end of each Work shift so as to maintain the building in a watertight condition.

K. Personal protective equipment, including respirators, shall be utilized and worn during all removal operations until the Work Area is cleared by the APM.

L. Following completion of gross abatement and after all accumulations of PCB waste materials have been containerized, the decontamination procedures in Section 3.04 shall be followed.

M. Finishes damaged by PCB abatement activities shall be restored prior to final payment. Finishes unable to be restored shall be replaced under this Contract.

N. Dry sweeping and any other methods that raise dust shall be prohibited.

3.04 EQUIPMENT AND AREA DECONTAMINATION

A. When removal of PCB materials is completed, the decontamination process shall consist of vacuuming (with a HEPA filter), wet wiping/mopping and a repeated vacuuming (with a HEPA filter) of the entire work area. All surfaces in and around the work area must be free of dust generated during the work.

B. Decontaminate all tools and equipment before removal from the work area in accordance with the procedures specified in the Contractor Work Plan and 40 CFR 761, Subpart S.

C. If the engineering controls specified in Section 3.02 of these specifications fail to prevent dust or debris from migrating to areas of the building other than the immediate work area, those areas shall be incorporated into the work area and thoroughly decontaminated to ensure all visible dust generated by the activity is eliminated.

D. All dust barriers and other protective sheetings used shall be disposed of as PCB Remediation Waste.

E. Visually inspect the area for any remaining dust or debris. Vacuum (with HEPA filter) and wet wipe until space is clean. Dispose of vacuum contents as PCB Remediation Waste.

F. Upon completion of decontamination and removing temporary dust barriers, a final inspection shall be performed by the Contractor and Abatement Project Monitor. As a result of any visual inspection by the Abatement Project Monitor, the Contractor will clean or re-clean the affected areas at no additional expense to the Owner.

3.05 ENCAPSULATION OF ADJACENT BUILDING MATERIALS

A. Encapsulation of adjacent building materials such as brick and mortar will be accomplished through the installation of metal frame/flashing integral to the new window design and caulking/sealants as specified by the Owner's design team. Self-adhesive, rubberized asphalt/polyethylene detail membrane will be applied to the masonry opening (see **Appendix E**). The specific dimensions of the frame/flashing have been based on PCB testing of building materials by the Consultant. As described in the Abatement Plan, the metal frame/flashing will extend a minimum of 2 inches from the caulk location. A non-PCB containing polyurethane base sealant as specified in Section 079200 (see **Appendix E**), shall be used to form a water-tight seal with the masonry.

B. Encapsulation will not be considered complete until inspected by the Contractor, Consultant and Owner.

PART 4 DISPOSAL OF PCB WASTE

4.01 TRANSPORTATION AND DISPOSAL SITE

A. All PCB Bulk Product Waste generated in association with this Plan will be managed as hazardous waste under a Uniform Hazardous Waste Manifest (see Section 4.03).

B. The Contractor's Hauler and Disposal Site shall be approved by the Owner. All PCB Bulk Product Waste will be transported to a RCRA Subtitle C facility permitted to accept said waste for disposal. All PCB Remediation Waste shall be transported to a RCRA Subtitle C or D facility permitted to accept said waste for disposal.

C. The Contractor shall give twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal working hours unless otherwise specified. No waste may be taken from the site unless the Contractor and Environmental Consultant are present and the Environmental Consultant authorizes the release of the waste as described herein.

D. All waste generated as part of the PCB project shall be removed from the site within ten (10) calendar days after successful completion of all PCB abatement work.

E. Upon arrival at the Project Site, the Hauler must possess and present to the Environmental Consultant a valid MADEP license to transport hazardous waste. The Environmental Consultant may verify the authenticity of the hauler's permit with the proper authority.

F. The Hauler, with the Contractor and the Environmental Consultant, shall inspect all material in the transport container prior to taking possession and signing the Hazardous Waste Manifests.

4.02 WASTE STORAGE CONTAINERS

A. All waste containers shall be fully enclosed and lockable (i.e., enclosed dumpster, trailer, etc.), marked and in compliance with 310 CMR 30.320 through 323 and 40 CFR 761.40, 761.45, and 761.65.

B. The Environmental Consultant shall verify that the waste storage container and/or truck tags (license plates) match that listed on the MADEP permit (310 CMR 30.414). Any container not listed on the permit shall be removed from the site immediately.

C. The container shall be plasticized and sealed with one layer of 6 mil polyethylene. Once on site, it shall be kept locked at all times, except during load out. The waste container shall not be used for storage of equipment or contractor supplies.

D. While on-site, the container shall be labeled with PCB Warning Labels as specified in Section 2.02.

E. The MADEP Waste Hauler's Permit number shall be stenciled on both sides and back of the container.

F. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.

G. The Owner may initiate random checks at the Disposal Site to insure that the procedures outlined herein are complied with.

4.03 HAZARDOUS WASTE MANIFESTS

A. A MADEP Uniform Hazardous Waste Manifest shall be utilized solely as the waste Manifest for transportation (310 CMR 30.310). A hauler billing form or bill of lading may be used if the hauler needs an independent record, but shall not be used as a shipping document.

B. The Manifest shall be completed by the Contractor and verified by the Environmental Consultant that all the information and amounts are accurate and the proper signatures are in place.

C. The Manifest shall have the appropriate signatures of the Owner's Representative (the Generator) and the Transporter representative prior to any waste being removed from the site.

D. Copies of the completed Manifest shall be retained by the Environmental Consultant.

E. Upon arrival at the Disposal Site, the Manifest shall be signed by the Disposal Facility operator to certify receipt of PCB materials covered by the manifest.

F. The Disposal Facility operator shall return a signed copy to the Transporter and within 14 days send a copy to both the Generator and the MADEP in accordance with 310 CMR 30.532.

G. The Contractor shall utilize the Waste Disposal Log provided by the Owner. This log shall be maintained by the Project Supervisor and shall be kept on site at all times. (See Attached Sample)

H. Originals of all waste disposal manifests disposal logs shall be submitted by the Contractor to the Owner with the final close-out documentation.

END OF SECTION

WASTE MANIFEST LOG

Facility: _____ **Building:** _____

Project: _____ **Project Number:** _____

PCB Contractor: _____ **Environmental Consultant:** _____

Load No.	Hauler	MADEP#	License Plate No.	Size of Container		DATES (Chain of Events) Departed from Site	Rec'd at Disposal Site	Manifest Returned

COMMENTS:

SECTION 002

SOIL REMOVAL

PART 1 GENERAL

1.01 SCOPE OF WORK

A. As part of the window replacement project at the Spring Street Elementary School in Shrewsbury, Massachusetts, PCB in caulking compound and surficial soil was identified which requires off site removal and disposal. A PCB Abatement Plan (the "Plan") has been submitted to the US Environmental Protection Agency pursuant to 40 CFR 761(c).

B. The work specified herein shall include the excavation, transport and off-site disposal of soil classified as "PCB Remediation Waste" pursuant to 40 CFR 761.61.

C. The volume of soil to be excavated is less than the 20 yard maximum allowed by MADEP under a LRA. Based on prior characterization sampling data, the anticipated volume of soil to be excavated is approximately 5 cubic yards.

C. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work.

D. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.

E. Working hours shall be as required and approved by the Owner. PCB material removal activities including, but not limited to, work area preparation, gross removal activities, cleaning activities, waste removal, etc. may need to be performed during 'off-hours' (including nights and weekends). In addition, multiple mobilizations may be required to perform the work identified in this project. The Contractor shall coordinate and schedule all Work with the facility and Owner's representative.

1.02 SPECIAL JOB CONDITIONS

A. Any special job conditions are described below.

1.03 PERMITS AND COMPLIANCE

A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.

B. Perform PCB related Work in accordance with EPA Regulations at 40 CFR 761 (Toxic Substances Control Act), MADEP Hazardous Waste Regulations 310 CMR 30 & Massachusetts Contingency Plan Regulations at 310 CMR 40.0000, OSHA Regulations at 29 CFR 1910.1000, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.

C. The Contractor must maintain current certificates of training, licenses or registrations pursuant to OSHA, MADEP and EPA regulations for all Work related to this Project, including the removal, handling, transport, and disposal of hazardous and industrial waste.

D. The Contractor shall be prepared to obtain an EPA ID number if so directed by the Owner.

E. Failure to adhere to the Project Documents shall constitute a breach of the Contract and the Owner shall have the right to and may terminate the Contract provided, however, the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.

1.04 SUBMITTALS

A. Pre-Work Submittals: Within 7 days prior to the pre-construction conference, the Contractor shall submit 3 copies of the documents listed below for review and approval prior to the commencement of PCB abatement activities:

1. Progress Schedule:
   a. Show the complete sequence of abatement activities and the sequencing of Work.
   b. Show the dates for the beginning and completion of Work.
2. Contractor Work Plan: Provide plans that clearly indicate the following:
   a. All Work Areas/containments
   b. Entrances and exits to the Work Areas/containments.
   c. Type of abatement activity/technique for each Work Area/containment.
   d. Methods used for equipment decontamination.
   e. Proposed location and construction of storage facilities.
3. Identification of Disposal Site/Landfill Permit from applicable regulatory agency.
4. MADEP Hazardous Waste Transporter Permit.
5. Copies of all current worker HAZMAT training certificates.

B. On-Site Submittals: Refer to Part 3.01.B for all submittals, documentation, and postings required to be maintained on-site during abatement activities.

C. Project Close-out Submittals: Within 30 days after project completion, the Contractor shall submit 4 copies of the documents listed below. One set of the documents shall be forwarded to the Owner and Consultant for review and approval prior to the Contractor's final payment.

1. **Originals** of all waste disposal manifests and disposal logs.
2. Disposal Site/Landfill Permit from applicable regulatory agency.
3. Copy of PCB notification with acknowledgement from the disposal facility/landfill, if applicable.

1.05 PRE-CONSTRUCTION CONFERENCE

A. Prior to start of preparatory Work under this Contract, the Contractor shall attend a pre-construction conference attended by Owner, Facility Personnel, and Environmental Consultant.

B. Agenda for this conference shall include but not necessarily be limited to:

1. Contractor's scope of Work, Work plan, and schedule to include number of workers and shifts.
2. Contractor's safety and health precautions including protective clothing and equipment and decontamination procedures.
3. Environmental Consultant's duties, functions, and authority.
4. Contractor's Work procedures including:
   a. Methods of job site preparation and removal methods.
   b. Disposal procedures.
   c. Cleanup procedures.
   d. Fire exits and emergency procedures.
5. Contractor's required pre-work and on-site submittals, documentation, and postings.
6. Contractor's plan for twenty-four (24) hour Project security both for prevention of theft and for barring entry of unauthorized personnel into Work Areas.
7. Storage of removed PCB materials.

8. Waste disposal requirements and procedures.

C. In conjunction with the conference the Contractor shall accompany the Owner and Environmental Consultant on a pre-construction walk-through documenting existing condition of finishes and furnishings, reviewing overall Work plan, location of fire exits, fire protection equipment, water supply and temporary electric tie-in.

1.06 APPLICABLE STANDARDS AND REGULATIONS

A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:

B. Federal Regulations:
1. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
2. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
3. 29 CFR 1926, "Construction Industry" (OSHA)
4. 40 CFR 761, “PART 761—POLYCHLORINATED BIPHENYLS (PCBs)” (EPA)
5. 49 CFR 171-173, Transportation Standards (DOT)

C. Massachusetts State Regulations:
1. 310 CMR 40.0000, “Massachusetts Contingency Plan”
2. 310 CMR 30.0000, “Hazardous Waste Regulations”

1.07 PROJECT MONITORING

A. The Owner shall engage the services of an Environmental Consultant (the Consultant) who shall serve as the Owner's Representative in regard to the performance of the PCB abatement Project and provide direction as required.

B. The Contractor is required to ensure cooperation of its personnel with the Consultant for the sampling and Project monitoring functions described in this section.

C. The Consultant shall provide the following administrative services:
1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
2. Assure that all notifications to governmental agencies or landfills by the Contractor are submitted in a timely manner and are correct in content.

D. The Consultant shall staff the Project with a trained person(s) to act on the Owner's behalf at the job site. This individual shall be designated as the Abatement Project Monitor (APM).
1. The APM shall be on-site at all times during soil excavation. The Contractor shall not be permitted to conduct any Work unless the APM is on-site (except for inspection and planning purposes during non-working days).

2. The APM shall have the authority to direct the actions of the Contractor verbally and in writing to ensure compliance with the Project documents and all regulations. The APM shall have the authority to Stop Work when gross Work practice deficiencies or unsafe practices are observed.

   a. Such Work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been corrected.
   b. Standby time required to resolve the situation shall be at the Contractor's expense.

3. The APM shall provide the following services:
   a. Inspection of the Contractor's Work, practices, and procedures, including temporary protection requirements, for compliance with all regulations and Project specifications.

b. Monitor the progress of the Contractor's Work, and report any deviations from the schedule to the Owner.
c. Monitor, verify, and document all waste load-out operations.
d. The APM shall maintain a log on site that documents all project related and Consultant and Contractor actions, activities, and occurrences.
e. The APM shall take air, swipe, wipe, or bulk samples upon the Owner's request.

4. The following inspections shall be conducted by the APM. Additional inspections shall be conducted as required by Project conditions. Progression from one phase of Work to the next by the Contractor is only permitted with the written approval of the APM.
   a. Pre-Construction Inspection: The purpose of this inspection is to verify the existing conditions of the Work Areas and to document these conditions.
   b. Pre-Commencement Inspection: This inspection shall take place only after the Work Area is fully prepped for removal.
   c. Work Inspections: The purpose of this inspection is to monitor the Work practices and procedures employed on the Project and to monitor the continued integrity of the containment system. Inspections within the removal areas shall be conducted by the APM during all preparation, removal, and cleaning activities at least twice every Work shift. Additional inspections shall be conducted as warranted.
   d. Visual Clearance Inspection: The purpose of this inspection is to verify that: all materials in the scope of work have been properly removed; no visible PCB material debris/residue remains.
   e. Punch List Inspection: The purpose of this inspection is to verify the Contractor's certification that all Work has been completed as contracted and the existing condition of the area prior to its release to the Owner.

5. The Owner may, at his discretion, choose to conduct air sampling during excavation. If air samples collected during abatement indicate any airborne PCB concentration(s) above the OSHA PEL of 0.5 mg/m3 or EPA recommended thresholds, work shall be stopped immediately and Work methods shall be altered to reduce the airborne PCB concentration(s).

1.08 PROJECT SUPERVISOR

A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:

1. The Project Supervisor shall be trained in PCB removal and hazardous waste management via a 40-hour HAZWOPER/Supervisor training course.

2. The Project Supervisor shall have a minimum of one year experience as a supervisor.

3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.

B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete. The Project Supervisor cannot be removed from the Project without the written consent of the Owner. The Project Supervisor shall be removed from the Project if so requested by the Owner.

C. The Project Supervisor shall maintain a bound Daily Project Log that includes the Waste Disposal Log required by section 4.03 of the specifications.

D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the APM.

1.09 TRAINING

A. As required by applicable regulations, prior to assignment to PCB Work instruct each employee with regard to the hazards of PCBs, safety and health precautions, and the use and requirements of protective clothing and equipment.

B. Employees managing Hazardous Waste as described in Section 3.03 must also meet the OSHA Personnel training requirements.

PART 2 PRODUCTS

2.01 PROTECTIVE CLOTHING

A. Provide personnel utilized during the Project with disposable protective whole body clothing, head coverings, and foot coverings. Provide disposable plastic or rubber gloves to protect hands (modified Level D).

B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.

C. Eye protection and hard hats shall be provided and made available for all personnel entering any Work Area.

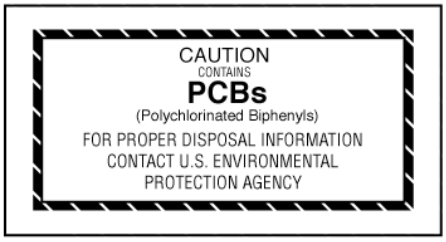
D. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.02 SIGNS AND LABELS, CONTAINERS

A. Provide warning signs and barrier tapes at all approaches to PCB Work Areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.

B. Provide the appropriate "Large PCB Marking" or "Small PCB Marking" (M_L or M_S per 40 CFR 761.40 & 761.45) as shown below, of sufficient size to be clearly legible, for display on waste containers (bags, boxes, roll-offs or drums) which will be used to contain or transport PCB contaminated material, in accordance with 40 CFR 761. In addition, U.S. Department of Transportation (DOT) 49 CFR Parts 171 and 172 requires the name and UN number of the material to be on the bags or drums, and, if shipped in bulk (roll-offs, Gaylord boxes, etc.) the bulk container must also be labeled: Polychlorinated biphenyl, solid mixture UN 3432.

M_L



M_S

C. The PCB materials are also Hazardous Waste, and must have a label stating the following on each container:

HAZARDOUS WASTE--Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority, or the U.S. Environmental Protection Agency.

Generator's Name and Address
Generator's EPA Identification Number
Manifest Tracking Number _____

D. Provide 6 mil polyethylene disposal bags with PCB caution labels.
   1. The "Small PCB Label" (M_S per 40 CFR 761.45) may be used as shown above. Bags shall also be labeled with U.S. DOT required markings per 49 CFR 172, Polychlorinated biphenyl, solid mixture UN 3432.
   2. Labeled PCB waste containers or bags shall not be used for non-PCB waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as PCB waste.

2.03 DAILY PROJECT LOG

A. Provide a Daily Project Log. The log shall contain on title page the Project name, name, address and phone number of Owner; name, address and phone number of Environmental Consultant; name, address and phone number of Abatement Contractor; emergency numbers including, but not limited to local Fire/Rescue department.

B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.

C. The Project Supervisor shall document all Work performed daily and note all inspections.

2.04 SHIPPING CONTAINERS AND PACKAGING

A. Provide packaging in accordance with 49 CFR 173 Packaging Group 9, such as 30 or 55 gallon capacity fiber, plastic, or metal drums, Gaylord Boxes or other Intermediate Bulk Containers (IBCs), or non-siftable bulk containers, capable of being sealed air and water tight if PCB waste has the potential to damage or puncture disposal bags. Affix PCB caution labels on lids of drums, and opposite sides of drums or bulk containers, as well as the ends of bulk containers.

PART 3 EXECUTION

3.01 WORK AREA PREPARATION

A. PCB caution signs/tape shall be posted at all approaches to the PCB Work Area.

B. Access to areas of work shall be regulated to prevent unauthorized visitors.

3.02 EQUIPMENT AND AREA DECONTAMINATION

A. Decontaminate all tools and equipment before removal from the work area in accordance with the procedures specified in the Contractor Work Plan and 40 CFR 761, Subpart S.

B. Upon completion of decontamination and removing caution signs/tape, a final inspection shall be performed by the Contractor and Abatement Project Monitor. As a result of any visual inspection by the Abatement Project Monitor, the Contractor will clean or re-clean the affected areas at no additional expense to the Owner.

3.03 SOIL EXCAVATION

A. Excavation of PCB-impacted soil will be directed by the Consultant. The area to be excavated is approximately 4' wide x 60' long x 0.5' deep, located on the unpaved east side of the building, south of the courtyard area (see **Figure 4**).

B. All soil excavated for off-site disposal shall be directly loaded into appropriate containers for off-site shipment.

C. The excavation shall be left open to provide access for the Consultant to obtain confirmatory samples for lab analyses. The excavation shall be temporarily covered by polyethylene sheeting and secured until the results of the confirmatory sampling are obtained and reviewed by the Consultant. No backfilling of the excavation shall take place until directed by the Consultant.

D. Clean topsoil or loam shall be used to replace the excavated soil and bring the area back to grade. The location or source of the replacement fill will be disclosed to and approved by the Consultant. The replacement soil will be seeded or landscaped to the Owner's satisfaction.

D. Soil excavation will not be considered complete until inspected by the Contractor, Consultant and Owner.

PART 4 DISPOSAL OF PCB WASTE

4.01 TRANSPORTATION AND DISPOSAL SITE

A. All PCB Remediation Waste generated in association with this Plan will be managed as hazardous waste under a Uniform Hazardous Waste Manifest (see Section 4.03).

B. The Contractor's Hauler and Disposal Site shall be approved by the Owner. All PCB Remediation Waste shall be transported to a RCRA Subtitle C or D facility permitted to accept said waste for disposal.

C. The Contractor shall give twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal working hours unless otherwise specified. No waste may be taken from the site unless the Contractor and Environmental Consultant are present and

the Environmental Consultant authorizes the release of the waste as described herein.

D. All waste generated as part of the PCB project shall be removed from the site within ten (10) calendar days after successful completion of all PCB abatement work.

E. Upon arrival at the Project Site, the Hauler must possess and present to the Environmental Consultant a valid MADEP license to transport hazardous waste. The Environmental Consultant may verify the authenticity of the hauler's permit with the proper authority.

F. The Hauler, with the Contractor and the Environmental Consultant, shall inspect all material in the transport container prior to taking possession and signing the Hazardous Waste Manifests.

4.02 WASTE STORAGE CONTAINERS

A. All waste containers shall be fully enclosed and lockable (i.e., enclosed dumpster, trailer, etc.), marked and in compliance with 310 CMR 30.320 through 323 and 40 CFR 761.40, 761.45, and 761.65.

B. The Environmental Consultant shall verify that the waste storage container and/or truck tags (license plates) match that listed on the MADEP permit (310 CMR 30.414). Any container not listed on the permit shall be removed from the site immediately.

C. The container shall be plasticized and sealed with one layer of 6 mil polyethylene. Once on site, it shall be kept locked at all times, except during load out. The waste container shall not be used for storage of equipment or contractor supplies.

D. While on-site, the container shall be labeled with PCB Warning Labels as specified in Section 2.02.

E. The MADEP Waste Hauler's Permit number shall be stenciled on both sides and back of the container.

F. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.

G. The Owner may initiate random checks at the Disposal Site to insure that the procedures outlined herein are complied with.

4.03 HAZARDOUS WASTE MANIFESTS

A. A MADEP Uniform Hazardous Waste Manifest shall be utilized solely as the waste Manifest for transportation (310 CMR 30.310). A hauler billing form or bill of lading may be used if the hauler needs an independent record, but shall not be used as a shipping document.

B. The Manifest shall be completed by the Contractor and verified by the Environmental Consultant that all the information and amounts are accurate and the proper signatures are in place.

C. The Manifest shall have the appropriate signatures of the Owner’s Representative (the Generator) and the Transporter representative prior to any waste being removed from the site.

D. Copies of the completed Manifest shall be retained by the Environmental Consultant.

E. Upon arrival at the Disposal Site, the Manifest shall be signed by the Disposal Facility operator to certify receipt of PCB materials covered by the manifest.

F. The Disposal Facility operator shall return a signed copy to the Transporter and within 14 days send a copy to both the Generator and the MADEP in accordance with 310 CMR 30.532.

G. The Contractor shall utilize the Waste Disposal Log provided by the Owner. This log shall be maintained by the Project Supervisor and shall be kept on site at all times. (See Attached Sample)

H. Originals of all waste disposal manifests disposal logs shall be submitted by the Contractor to the Owner with the final close-out documentation.

END OF SECTION

WASTE MANIFEST LOG

Facility: _____ **Building:** _____

Project: _____ **Project Number:** _____

PCB Contractor: _____ **Environmental Consultant:** _____

Load No.	Hauler	MADEP#	License Plate No.	Size of Container		DATES (Chain of Events) Departed from Site	Rec'd at Disposal Site	Manifest Returned

COMMENTS:

APPENDIX D

PUBLIC NOTICE OF PCB ABATEMENT PROJECT

Spring Street School

Shrewsbury

Commencing XYZ XX, 2012, in preparation of the School's renovation, the School Department will begin the removal of window caulking and other building material that has been identified as containing PCBs (polychlorinated biphenyls) in excess of limits determined by the US Environmental Protection Agency (EPA) to be safe. PCBs were commonly used in the formulation of these materials until 1978. More recently, it has become recognized that at elevated concentrations, PCBs in building materials may represent a health hazard. This hazard is greater when the materials are older and in deteriorated condition. Therefore, it has been advised that where it is feasible, all of these materials be removed for off-site disposal at an approved facility. Where it may not be feasible to remove material such as adjacent brick, mortar, or soil where smaller concentrations of PCBs may have leached into, precautions may be used to limit potential exposure to them.

At this school, plans have been made to remove all PCB-containing material greater than 50 parts per million (ppm), soil containing PCBs greater than 1 ppm, and to encapsulate adjacent brick or mortar that has been shown to potentially contain concentrations greater than 1 ppm.

During this time, we ask that you observe all restrictions placed on entry into areas where this work is taking place. These areas will be clearly marked by caution tape and posted signs. You may see professional hazardous materials workers in white suits and respirators. The work areas will be monitored and tested to make sure that the work is done properly and that there are no releases to the environment. All testing will be made available to the public.

For more information, please contact: Robert Cox, Director of School Facilities, or call EPA's PCB in Caulk Hotline at 888-835-5372 to learn more about PCBs in caulk.

APPENDIX E

SECTION 079200

JOINT SEALANTS

Part 1 - General

1.01 General Requirements

A. Attention is directed to all sections within Procurement and Contracting Requirements and Division 01 General Requirements, as listed in Table of Contents which are hereby made a part of this Section.

1.02 Description of Work

A. Work Included - Provide labor, products, equipment, and supervision necessary to complete the work of this section and as indicated on the drawings. Generally, this includes:
   1. Exterior sealant
   2. Interior caulking
   3. Fire safing and fire stop coating and sealant

B. Alternates: None.

C. Related Work - Items of work in the following sections are related to work performed under this section.
   1. Section 085113 - Aluminum Windows

1.03 Submittals

A. Refer to Section 013000 - Administrative Requirements.

B. Samples of all materials.

C. Manufacturer's Specifications and Installation Instructions.

D. Catalogs and test data for all materials specified under this Section.

Part 2 - Products

2.01 Materials

A. Exterior Sealant:
   1. For all joints shall be two-part component polyurethane base sealant conforming to ASTM C920 Type M, Grade NS, Class 25, uses NT, M, A and O Specifications made by Tremco, Sonneborn, Pecora or approved equal. Color shall be as selected by the Owner.

B. Interior Caulking:
   1. Architectural Grade one-part, odorless caulking compound as manufactured by Tremco, PRC, Pecora or approved equal. Color shall be as selected by the Owner.

D. Primer
   1. As recommended by manufacturer of caulking and sealant material.

E. Backup Material/Bond Breaker
   1. Backup material recommended by manufacturer of caulking and sealant material.
   2. "Ethafoam Rod" by Dow, "Joint Packing" by Tremco, "Minicel" by PRC, or approved equal. Color or filler shall not be darker than caulking or sealant compound.

E. Fire Safing and Fire Stop Coating and Sealant
   1. Fire Safing shall be 3M Thermafiber Safing or approved equal. Fire safing shall be mechanically attached to curtainwall frame and attached to floor slab with safing impaling clips as required to meet the manufactuer's test report to achieve a 2 hour fire resistance rating. The General Contractor shall consult with a fire safing manufacturer to review the existing conditions and details for curtainwall installation and select a system to meet the fire resistance rating.
   2. Fire stop coating and sealant shall be by 3M or approved equal. The General Contractor shall consult with a Fire stop coating and sealant manufacturer to review the existing conditions and details for curtainwall installation and select a system to meet the 2 hour fire resistance rating.
   3. The General Contractor shall provide documentation from the manufacturer that indicates that the system selected will meet the 2 hour fire resistance rating.

Part 3 - Execution

3.01 Inspection

A. Surfaces to receive materials shall meet at least the minimum requirements of the manufacturer of the materials.

B. Surfaces to receive materials shall be examined by the Contractor and work shall not be started until defects have been corrected.

3.02 Installation of Sealant and Caulking

A. General
   1. Interior caulking shall be used to caulk joints in the interior windows, hardwood and gypsum board finishes and wherever else called for on the Drawings or required to create well sealed and finished interior.
   2. Exterior sealants shall be used to seal all window and louver joints and wherever else called for on the Drawings or required to create a well sealed and finished exterior.
   3. The sealant shall bond to two opposing surfaces only. A "bond breaker" shall be installed between sealant and non-release types of backup material to prevent destruction of sealant as movements occur. When space for back-up material does not exist, a "bond breaker" tape shall be used as a release material between sealant and back of joint.

B. Application
   1. All surfaces shall be clean, dry, free of dust, loose aggregate, oil, grease, wax, tar, asphalt, dirt and grit.
   2. Apply primer, as recommended by the manufacturer, to all surfaces prior to the application of caulking or sealant.

3. Caulking compounds and sealants shall be applied with a hand or pressure gun having a nozzle of proper size to fill the joint. Material shall be driven in with sufficient pressure to fill and firmly compact the joint.
4. Caulking compounds and sealant shall not be applied at a temperature below 40 degrees Fahrenheit.
5. Finish joints neatly by pointing with a beading tool.
6. All excess material shall be removed. Care shall be taken to prevent smears. Adjacent material which has been soiled shall be cleaned immediately and all work shall be left in a neat clean condition. All caulking and sealing shall be done before final paint coat is applied. All caulked and sealed joints shall be watertight. Masking tape may be employed to assure clean, sharp lines along joint.
7. All joint preparation, mixing of materials, application of caulking and sealants, cleaning, etc. shall be in strict accordance with the printed instructions of the manufacturer.

3.03 Fire Safing and Fire Stop Coating and Sealant

A. All Fire Safing and Fire Stop Coating and Sealant should be installed per manufactuer's instructions for a system specific test description to obtain a 2 hour fire resistance rating. All compressed Safing insulation should be installed per the listed assembly. Perimeter Installation: Safing insulation should be compression fitted and mechanically attached between the slab edge and the curtainwall assembly, leaving no voids.

End of Section 079200

GRACE

PERM-A-BARRIER® DETAIL MEMBRANE

Self-adhesive, rubberized asphalt/polyethylene detail membrane for air and vapor barrier applications

Description

Perm-A-Barrier® Detail Membrane is ideal for protecting and sealing critical areas of the building superstructure from the damaging effects of the elements. By minimizing air and water vapor flow through the building exterior at transition areas, Perm-A-Barrier Detail Membrane:

- Seals transition and detail areas to provide a continuous air barrier
- Prevents premature deterioration of the building envelope

Advantages

- **Fully bonded—**transmits wind loads directly to the substrate
- **Waterproof and impermeable to moisture—**impermeable to the passage of liquid water and water vapor
- **Air tight—**exceeds CCMC requirements for air barrier membranes and complies with Massachusetts State Energy Code
- **Cross laminated film—**provides dimensional stability, high tear strength, puncture and impact resistance
- **Cold applied—**no flame hazard; self-adhesive overlaps ensure continuity
- **Flexible—**accommodates minor settlement and shrinkage movement
- **Controlled thickness—**factory made sheet ensures constant, non-variable site application
- **Aggressive, conformable adhesive—**allows self-sealing around mechanical fasteners
- **Wide application window—**Perm-A-Barrier Detail Membrane surface and ambient temperatures at 25°F (-4°C) and above

Product Advantages

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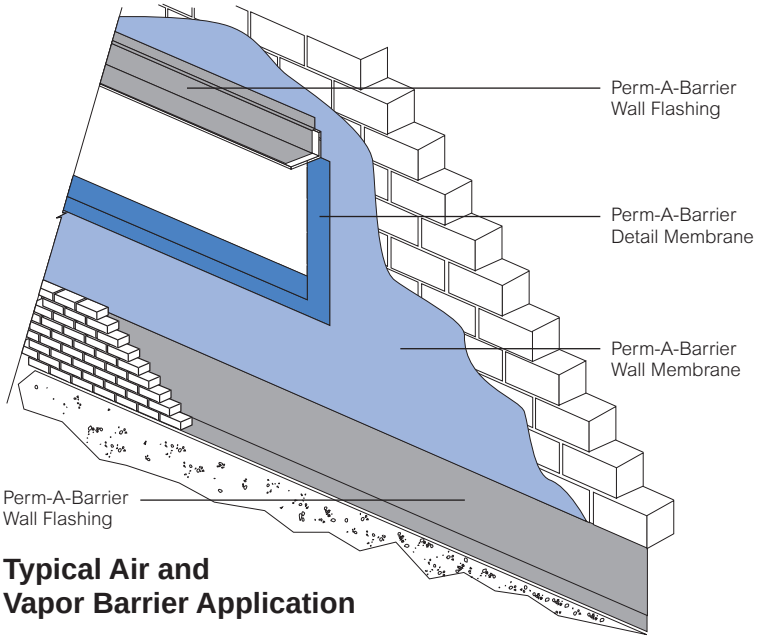

Typical Air and Vapor Barrier Application

Drawings are for illustration purposes only.
Please refer to graceconstruction.com for specific application details.

System Components

- **Perm-A-Barrier Wall Membrane—** for use at temperatures above 40°F (5°C)
- **Perm-A-Barrier Low Temperature Wall Membrane—**low temperature grade for use at temperatures between 25°F (-4°C) and 60°F (16°C)
- **Perm-A-Barrier Liquid—**two component synthetic rubber, cold vulcanized fluid-applied membrane
- **Perm-A-Barrier Wall Flashing—** self-adhesive, rubberized asphalt/polyethylene flashing for thru-wall applications
- **Perm-A-Barrier WB Primer—** high tack, water-based primer for use with Perm-A-Barrier Wall Membrane and Perm-A-Barrier Low Temperature Wall Membrane on cementitious and exterior gypsum wallboards
- **Bituthene® Primer B2—**used to prime green concrete or damp substrates
- **Bituthene Primer B2 LVC—**low VOC primer used to prime green concrete or damp surfaces
- **Bituthene Mastic Trowel Grade—** rubberized asphalt mastic for sealing patches, terminations, brick ties, etc.
- **Bituthene Liquid Membrane—** two component, trowel grade, asphalt modified urethane for sealing patches, terminations, brick ties, etc.

Installation

Safety

Perm-A-Barrier products must be handled properly. Vapors from the mastic and solvent-based primer are harmful and flammable. For these products, the best available information on safe handling, storage, personal protection, health and environmental considerations has been gathered. Refer to product label and Material Safety Data Sheet before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and MSDS before use. MSDSs can be obtained from our web site at graceconstruction.com or by contacting us toll free at 866-333-3SBM (3726).

Surface Preparation

Surface must be smooth, clean, dry and free of voids, spalled areas, loose aggregate, loose nails, sharp protrusions or other matter that will hinder the adhesion or regularity of the wall membrane installation. Clean loose dust or dirt from the surface to which the detail membrane is to be applied by wiping with a clean, dry cloth or brush.

If the substrate is damp, allow to dry or use Bituthene Primer B2 or Bituthene Primer B2 LVC to prepare the area to receive the membrane. DO NOT apply any primer to Perm-A-Barrier Detail Membrane.

Temperature

Perm-A-Barrier Detail Membrane may only be applied in dry weather when air and surface temperatures are above 25°F (-4°C).

Application

Priming—Perm-A-Barrier WB Primer is a water-based primer which imparts an aggressive, high tack finish on the treated substrate. It is packaged ready to use and is specifically designed to facilitate tenacious adhesion of Perm-A-Barrier Wall Flashing, Wall Membrane and Detail Membrane to glass mat surfaces and exterior gypsum boards such as DensGlass Gold®. Apply Perm-A-Barrier WB Primer by roller at a coverage rate of 250–350 ft^2/gal (6–8 m^2/L). Allow to dry for a minimum of 1 hour (longer at low temperatures).

Detail Membrane Application

Pre-cut Perm-A-Barrier Detail Membrane to easily handled lengths. Peel release paper from roll to expose rubberized asphalt and carefully position tape against substrate. Press firmly into place with a steel hand roller or the back of a utility knife as soon as possible, fully adhering the tape to the substrate to prevent water from migrating under the Perm-A-Barrier Detail Membrane. Overlap adjacent pieces 2 in. (51 mm) and roll overlap with a steel hand roller.

Perm-A-Barrier Wall Membranes and Wall Flashing—Apply a bead of Bituthene Mastic along all laps, seams, top edges, cuts and penetrations and trowel into place.

Perm-A-Barrier Liquid—If Perm-A-Barrier Liquid is more than 7 days old, priming may be necessary. Refer to Technical Letter 9 for more information. Apply a bead of Bituthene Liquid Membrane along all laps, seams, top edges, cuts and penetrations and trowel into place.

No reglet is necessary when installing Perm-A-Barrier Detail Membrane to vertical surfaces. Complete installation instructions and details are available upon request.

If wrinkles develop, carefully cut out affected area and replace in similar procedure outlined above. The repair piece must be pressed into place with a hand roller as soon as possible to ensure continuous and intimate contact with the substrate.

Membrane Protection

Perm-A-Barrier Detail Membrane must be protected from damage by other trades or construction materials.

Storage and Handling Information

All materials must be protected from rain and physical damage. Pallets of Perm-A-Barrier Detail Membrane must not be double stacked on the job site. Provide cover on top and all sides, allowing for adequate ventilation. Store membrane where temperatures will not exceed 90°F (32°C) for extended periods. All products must be stored in a dry area away from high heat, flames or sparks. Store only as much material at point of use as is required for each day's work.

Limitations

Perm-A-Barrier membrane systems must not be applied in areas where they will be permanently exposed to UV light and must be covered within a reasonable amount of time, not to exceed 30 days.

Warranty

Perm-A-Barrier products are warranted to be free of defects in manufacture for a period of 5 years. Material will be provided at no charge to replace any defective product.

Technical Service

Support is provided by full-time technically trained Grace field sales representatives and technical service personnel, backed by a central research and development technical services staff.

Supply

Product	Unit of Sale	Approximate Coverage	Weight	Palletization
Perm-A-Barrier Detail Membrane				
—6 in. (152 mm)	6 rolls	75 linear ft per roll	11 lbs/roll	25 cartons (150 rolls) per pallet
—9 in. (225 mm)	4 rolls	75 linear ft per roll	16 lbs/roll	25 cartons (100 rolls) per pallet
—12 in. (305 mm)	3 rolls	75 linear ft per roll	22 lbs/roll	25 cartons (75 rolls) per pallet
Perm-A-Barrier Wall Membrane	1 roll	225 ft² (20.9 m²) per roll 3 x 75 ft (0.9 x 25 m) roll	67 lbs/roll	25 cartons (25 rolls) per pallet
Perm-A-Barrier Low Temperature Wall Membrane	1 roll	225 ft² (20.9 m²) per roll 3 x 75 ft (0.9 x 25 m) roll	67 lbs/roll	25 cartons (25 rolls) per pallet
Perm-A-Barrier Wall Flashing				
—12 in. (305 mm)	3 rolls	75 linear ft per roll	25 lbs/roll	25 cartons (75 rolls) per pallet
—18 in. (457 mm)	2 rolls	75 linear ft per roll	37.5 lbs/roll	25 cartons (50 rolls) per pallet
—24 in. (610 mm)	1 roll	75 linear ft per roll	55 lbs/roll	35 cartons (35 rolls) per pallet
—36 in. (914 mm)	1 roll	75 linear ft per roll	75 lbs/roll	25 cartons (25 rolls) per pallet
Bituthene Mastic—5 gal pail	1 pail	approx. 120 ft² at 60 mils	54 lbs/pail	36 pails per pallet
Bituthene Mastic—30 oz tube	12 tubes	approx. 30 linear ft x ¼ in. bead	32 lbs/carton	72 cartons (864 tubes) per pallet
Perm-A-Barrier WB Primer—5 gal pail	1 pail	250–350 ft²/gal (6–8 m²/L)	45 lbs/pail	24 pails per pallet
Bituthene Primer B2—5 gal pail	1 pail	250–350 ft²/gal (6–8 m²/L)	44 lbs/pail	48 pails per pallet
Bituthene Primer B2 LVC—5 gal pail	1 pail	325–425 ft²/gal (7.5–10 m²/L)	44 lbs/pail	48 pails per pallet

Physical Properties

Property	Perm-A-Barrier Detail Membrane	Test Method
Thickness	3/64 in. (1 mm)	ASTM D3767 method A
Minimum tensile strength, membranes	400 psi (2.8 MPa)	ASTM D412 die C modified
Minimum tensile strength, film	5000 psi (34.5 MPa)	ASTM D412 die C modified
Minimum elongation, to failure of rubberized asphalt	200%	ASTM D412 die C modified
Pliability, at 180° bend over 1 in. (25 mm) mandrel	Pass at -25°F (-32°C)	ASTM D1970
Crack cycling, ⅛ in. (3.2 mm) at -25°F (-32°C)	Unaffected	ASTM C836
Minimum puncture resistance, membrane	40 lbs (178 N)	ASTM E154
Lap peel adhesion at minimum application temperature	4 lbs/in. (700 N/m width)	ASTM D1876 modified
Maximum permeance to water vapor transmission	0.05 perms/(Pa.s.m²) (2.9 ng)	ASTM E96 method B
Air permeance[1]	0.0002 cf/min/ft² (<0.001 L/s/m²)	ASTM E2178
Air permeance of in-place membrane[2]	No change in air permeance value	ASTM E330
Water absorption (weight gain at 24 hours)	0.1%	ASTM D570

Footnote:

1. Air permeance measured at a pressure differential of 1/64 in. (68 Pa) Hg.
2. Air permeance measured at a pressure differential of 1/64 in. (68 Pa) Hg after wall being subjected to a negative 57/64 in. (3014 Pa) Hg pressure difference for 10 seconds.

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For technical assistance call toll free at 866-333-3SBM (3726)

PAB-067C Printed in U.S.A. 1/08 FA/LI/1M

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